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THE

PHILOSOPHY

OF

NATURAL HISTORY.

BY THE LATE

WILLIAM SMELLIE,

MEMBER OF THE ANTIQUARIAN AND ROYAL
SOCIETIES OF EDINBURGH.

VOLUME II.

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1799.

TO HIS GRACE

THE DUKE OF MONTROSE.

MY LORD DUKE,

IN giving this Work of my late Father's to the world, I flatter myſelf that, while I diſcharge a duty to the memory of a Parent, I perform, at the ſame time, a not unacceptable ſervice to the Public. The reception with which my Father's former productions of a ſimilar kind were honoured, together with my knowledge of the attention which he paid to the perfecting the preſent work, by the acquiſition of every information which inquiry or reſearch could procure, may fairly inſpire a certain degree of confidence in the favour it may expect to obtain. One circumſtance indeed there is, which naturally creates ſome diffidence in offering this volume to the world, namely, that it is preſented under all the diſadvantages attending a poſthumous work which the death of its Author has deprived of his corrections and reviſal. From this circumſtance, however, it may, perhaps, gain as much on one hand as it loſes

on another. While it may be expoſed to the ſeverity of criticiſm, it will conciliate the indulgence of candour, and the favour of humanity. A ſenſe of thoſe amiable qualities in your GRACE emboldens me to uſher it into the world under the protection of your Name. Placed at the head of the *Society of Antiquaries of Scotland*, one of the chief purpoſes of whoſe inſtitution is the extenſion of hiſtorical and literary knowledge in this kingdom; a work calculated for the promotion of Natural Hiſtory and Science cannot be conſidered as foreign to the views of that Society, or to the notice of your GRACE as its Preſident. As Secretary of that Society, I may be allowed to embrace this opportunity of preſenting the volume to your GRACE, and of expreſſing, at the ſame time, the very high eſteem which, in common with my country, I entertain for your GRACE's character, and of that conſideration and reſpect with which I have the honour to be,

MY LORD DUKE,

With the profoundeſt reſpect and eſteem,

Your GRACE's moſt humble ſervant,

ALEX. SMELLIE.

EDIN. NOV. 15.
1798.

PRE-

PREFACE.

IN a Preface to the firſt volume, I gave a ſhort view of the origin, progreſs, and general deſign of this work. With regard to the execution, it becomes me to be ſilent. But I muſt be allowed to expreſs my gratitude for the favourable reception I have obtained from public candour, or, perhaps, public indulgence. This circumſtance, though highly flattering, acts as a depreſſing power on a ſecond attempt. I feel a degree of dread, leſt I ſhould diſappoint expectation, and loſe the ſmall portion of literary reputation I may have acquired. As my plan, however, cannot be completed without another volume, I muſt ſubmit to my fate.

The

The objects exhibited by nature to our obſervation are numerous, variegated, and connected. To give even a curſory view of the whole, would exceed the powers of any human being. For this reaſon, I have hitherto confined my remarks chiefly to the animal and vegetable kingdoms. In this ſecond and laſt volume, I ſhall obſerve the ſame plan. The field is ſtill extenſive; and I ſhall endeavour to cultivate it, at leaſt, with diligence.

The ſubjects I have ſelected for the preſent publication will not, I hope, be leſs entertaining and inſtructive than thoſe of the former.

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THE

PHILOSOPHY

OF

NATURAL HISTORY.

CHAPTER I.

Of Method.

SECT. I.

Of the utility of Method in every department of Science, and particularly in Natural Hiſtory—Methodical arrangement into tribes and families, both in the animal and vegetable kingdoms, is evidently founded in Nature.

METHOD is the order and diſpoſition of our thoughts, relating to a particular ſubject. It is ſo eſſential to ſcience in general, that the merit of any compoſition is principally eſtimated by the juſtneſs and preciſion with which the authors ideas are arranged.

In Compoſition, whatever be the ſubject, diſtinct ideas are not only neceſſary, but thoſe ideas muſt be diſpoſed in a certain order or method, correſponding to the general deſign of the performance. Neither is method, in this caſe, a matter of choice. It is the reſult of the particular principles and mode of reaſoning adopted by the writer. To enumerate the many advantages ariſing from methodical arrangement in ſcience, is foreign to our purpoſe. Without method, it is impoſſible to reach perſpicuity, the capital object in every compoſition.

In deſcribing a vaſt variety of objects poſſeſſing ſome univerſal and common qualities,—every individual, at the ſame time, having ſome qualities peculiar to itſelf, ſome generic or ſpecific differences which ſerve to diſtinguiſh it from the whole group, and to conſtitute a particular character,—methodical diſtribution is not only uſeful, but indiſpenſably neceſſary.

In ſuch a multifarious ſubject as natural hiſtory, which has for its object the numerous productions of animate and inanimate nature, it was neceſſary to invent ſome mode of generaliſing our ideas. The number of objects is ſo immenſe; the general figure, ſituation and ſtructure of parts in the animal tribes; their manner of living, generation, moral character, or diſpoſition of mind, the artifices employed in defending themſelves and attacking their enemies, in procuring food and providing againſt the inclemencies and viciſſitudes of the different elements, their utility to mankind, and the relations they have to each other; theſe, and many other circumſtances, are ſo various and complicated, that, without a methodical diſtribution into claſſes and genera, although perfectly arbitrary, and though no traces of any connecting principles were diſcoverable in the productions of nature, the mind

mind would inſtantly recoil, and for ever abandon the ſtudy of Natural Hiſtory, as a heap of undigeſted materials which it was impoſſible to bring into a ſcientific form, which conſequently might diſtract and confound, but could never afford any rational entertainment to an intelligent being.

But Nature, however numerous and diverſified in her productions, preſents no ſuch disjointed and incongruous aſſemblages. On the contrary, there is not a ſingle being in the univerſe, whether animate or inanimate, endowed with a ſet of powers and qualities entirely peculiar to itſelf. If ſuch a body really exiſted, and could be recogniſed by our ſenſes, ſo powerful is the impreſſion received from the general concatenation of natural objects, that we could not heſitate a moment in pronouncing it miraculous. The variety of objects is almoſt infinite; but theſe varieties are not effected by large ſtrides, leaving ample room for farther gradations. Their limits, on the contrary, are ſo narrowly, ſo nicely defined, that conſiderable attention, joined to a habit of accurate obſervation, is neceſſary to diſcern them. The general utility of this great and benevolent plan of operation is apparent. Not to mention the other advantages of mutual dependence and relation, this variety and uniformity, thoſe beautiful connections and diſtinctions, allure us to the ſtudy of Nature, afford ſufficient materials for the conſtruction of ſcience, give riſe to all our abſtract ideas, and, of courſe, extend and enlarge our reaſoning faculties.

Every man of ordinary underſtanding, although he has given but little attention to the animals which ſurround him, has been ſo long accuſtomed, not from inſtruction, but obſervation, to arrange them into the four grand natural Claſſes of Quadrupeds, Birds, Fiſhes, and Inſects, that he is unable to recollect either the time or manner

in which he acquired the idea of this diſtribution. Without beſtowing a more particular attention, ſuch a perſon cannot be ſuppoſed to inveſtigate thoſe leſs obvious relations which ſerve as a baſis for generic and ſpecific diſtinctions.

But a ſtricter ſcrutiny into the animal creation will ſoon enable us not only to diſcern general analogies and connecting principles, but likewiſe a number of particular and ſtriking relations which characteriſe and conſtitute tribes and families.

So many common qualities occur in the great natural claſs of quadrupeds, that it is almoſt unneceſſary to mention them. They have an equal number of legs; the number of eyes and ears are the ſame; there is an evident ſimilarity in the general figure of their bodies; their ſkins are covered with hair; they are all viviparous, and ſuckle their young; their manner of generating and producing is nearly the ſame. The ſimilarities in their internal ſtructure are not leſs remarkable. They are all furniſhed with lungs to anſwer the purpoſes of reſpiration; their hearts conſiſt of two ventricles and two auricles; their blood is red and warm, &c.

Notwithſtanding the many ſimilarities that take place in the external form and internal ſtructure of the claſs of quadrupeds, the characters and features by which Nature has diſtinguiſhed the different genera or families are ſtill more numerous. Theſe diſtinctions are ſo various, and may be diſcovered in ſo many different parts of the body, in the food, diſpoſitions, and peculiar inſtincts, that they have given riſe to a great diverſity of arrangement adopted by different ſyſtematic writers.

M.

M. de Buffon, indeed, makes the variety of methodical diſtributions an argument againſt ſyſtematic arrangement in general, as implying an uncertainty and deficiency in the natural characters. We ſhall have occaſion afterwards to take notice of the method adopted by this ingenious and eloquent author, and ſhall only, in this place, mention ſome particulars which, we imagine, will be ſufficient to convince the candid inquirer, that methodical diſtribution is not only uſeful in the ſtudy of Natural Hiſtory, but that Nature has actually preſented her productions to us, not in an immenſity of unconnected individuals, but in larger or ſmaller groups, linked together by unambiguous relations. Theſe groups are commonly known by the name of *genera* or *families*, every individual of which ought not only to poſſeſs the general properties of the claſs, but likewiſe a family character and likeneſs. The concurrence of theſe circumſtances is neceſſary to the formation of a *natural genus*, in oppoſition to *artificial* aſſemblages, to which, in ſome caſes, moſt ſyſtematic writers have been obliged to reſort, partly from the want of a ſufficient acquaintance with particular animals, and partly owing to ſome original imperfection in their principles of arrangement.

The cat-kind, the felinum genus of Mr Ray, the felis of Linnæus, comprehends the lion, tigre, panther, leopard, ounce, the cat-a-mountain, the domeſtic cat, and the lynx. The bare inſpection of theſe animals, or their pictures, without knowing any thing of their hiſtory, will at once convince us of their mutual relations, and of the propriety of placing them under one genus. But, after we have learned their hiſtory, and diſcovered the ſimilarity in their diſpoſitions, in their food, manner of ſeizing and devouring their prey, and other circumſtances in their oeconomy, we can no longer heſitate in pronouncing them a natural genus. The horſe, the aſs, and

the

the zebra; the different ſpecies of monkies; the bats; the weſels; the ſquirrels; the different ſpecies of deer; the goat-kind; the ſheep-kind; the ox-kind; the armadillos or tatus; the hare-kind: Theſe, and many others, are in the ſame circumſtances, and have an equal title to be conſidered as natural genera.

We might enumerate ſimilar examples among birds, fiſhes, and inſects; but thoſe who are unacquainted with Natural Hiſtory may believe us when we aſſert, that the ſame diſtinguiſhing features, the ſame family-connections are to be found in the animals belonging to thoſe claſſes as take place among quadrupeds; and the Naturaliſt has no occaſion to be informed of a fact with which he is already ſufficiently acquainted.

We are now fully authoriſed to lay it down as an eſtabliſhed truth, that there is a general ſubordination and concatenation in the animal kingdom, that Nature has actually diſtributed her productions into claſſes, and genera; and conſequently that thoſe ſyſtematic writers who have moſt cloſely followed the order of Nature in their methodical diſtributions are entitled to the higheſt rank in the public eſtimation.

But, although claſſes and genera be evidently founded in nature, a difficulty ſtill remains. In order to facilitate the inveſtigation of animals, naturaliſts have found it neceſſary to make intermediate diviſions between the claſſes and the genera. Theſe diviſions are called *orders*. Even in this article Nature is not altogether deficient. We are already acquainted with many inſtances, in the animal kingdom, of particular relations by which ſeveral genera of the ſame claſs are peculiarly connected. A thorough knowledge of theſe natural relations

tions is all that is neceſſary for the conſtruction of a perfect method. But there is ſuch a variety of circumſtances to be learned, of which we are as yet perfectly ignorant, that the induſtry and experience of many ages will ſtill be neceſſary, if indeed we can ever hope, for the acquiſition of this great deſideratum in natural hiſtory. A ſimilarity in the external figure or internal ſtructure is not enough. The diſpoſitions, manners, inſtincts, œconomy, &c. muſt likewiſe be thoroughly known. We are at preſent far from being ſufficiently acquainted with theſe, and many other important circumſtances, even with regard to ſeveral of our native animals. How then can we expect to ſee a perfect methodical diſtribution? What right have we to cenſure ſyſtematic writers for not arriving at an impoſſible degree of perfection in their method? It is cruel and injurious. To receive with joy the light they communicate, to employ their knowledge and experience in the further advancement of the ſcience, and to grant them the tribute of praiſe in proportion to the merit of their reſpective performances, would be more conſiſtent with that candor and humanity which ought ever to be the inſeparable concomitants of philoſophy.

It is principally in the formation of orders that naturaliſts have ſo widely differed in their ſyſtems. Ignorant of the genuine relations of nature, they have been obliged to have recourſe to artificial diagnoſtics. In the claſs of quadrupeds, the characteriſtic ſigns are taken from the feet, from the teeth, the paps, the parts of generation, &c. There is ſtill a greater diverſity in the orders of birds, fiſhes, and inſects. Particular parts of the body are fixed upon, not becauſe theſe parts are pointed out by Nature as infallible marks of diſtinction or relation, but becauſe a perfect method, in the preſent ſtate of the ſcience, is impoſſible; and any method is preferable to confuſion.

ſion. It is vain, therefore, to diſpute about the propriety or impropriety of the aſſemblages in the orders of a Ray, a Linnæus, a Klein, or a Pennant. Till we acquire a more perfect knowledge of the hiſtory, as well as of the figure of animals, it is of little importance whoſe ſyſtem be adopted, provided the characters be clear, and all the facts that are at preſent known be diſtinctly related. Were every naturaliſt of the ſame ſentiments with regard to this point, many incumbrances with which natural hiſtory is now loaded would be removed; the ſtudent would not be diſtracted and retarded by an infinity of ſynonimes; the ſcience would become more ſimple and intelligible; and, of courſe, its bounds and the number of its votaries would ſoon be greatly augmented. I mean not that all attempts towards the perfection of ſyſtem ſhould be laid aſide; but that, in the preſent imperfect ſtate of the ſcience, it is to be regretted, that ſo much time and genius ſhould be expended in fruitleſs diſputes, and in the augmentation of methods and terms. To add to the number of facts and obſervations, to deſcribe with accuracy and preciſion, to ſeparate fiction from truth, to inveſtigate the œconomy and moral character of animals, and to render their utility to mankind more extenſive: Theſe are objects more worthy of the attention of philoſophers, more agreeable to ingenuous minds, and more correſpondent to the genius of the ſcience.

Nothing further need be ſaid with regard to the utility and defects of method in general. Obſervations of a more particular nature will occur in explaining ſome of the principal methodical arrangements. A ſhort view of the methods invented by ſyſtematic writers will make the reader acquainted with the different and ſucceſſive efforts towards the improvement of method, and give us an opportunity of unfolding more diſtinctly the reaſons by which we have

have been determined, in the following work, to adopt one in preference to all the reſt.

In moſt authors who have written profeſſedly upon the hiſtory of animals, attempts towards methodical arrangement may be diſcerned. Ariſtotle, Pliny, and Ælian perceived the utility of method. But they ſeem never to have dreamed of the practicability of teaching the ſtudent, by the help of a ſyſtem, partly natural, partly artificial, to inveſtigate the name, and, in many inſtances, even the nature and diſpoſitions of an animal he never ſaw before; or to be able, in a few minutes, to pronounce with certainty, that it had never hitherto been deſcribed by any author. This curious diſcovery was reſerved for a later and more ſcrutinizing age.

Book 7th gives a particular account of the circumſtances preceding and following the generation of man, viz. puberty, the menſtrual flux, ſigns of conception, the time of geſtation, the number of young, the milk, the reſemblance of children to their parents, &c.

The firſt fifteen chapters of the 8th book contain a hiſtory of the food and manner of living of the different tribes of animals. From the 15th to the 24th, we have an account of ſuch animals as conceal themſelves at certain ſeaſons of the year, the migration of birds, and what animals renew their age by moulting, or by caſting their ſkin. From the 24th chapter to the end of the book, the author enumerates the diſeaſes of animals, the ſituations and circumſtances that are favourable to health or productive of diſeaſes, and the ſeaſons when they are moſt proper to be uſed for food.

In the firſt chapter of book 9th, the mental differences that take place in males and females are pointed out. The remainder of this book treats of the friendly or hoſtile diſpoſitions of certain animals to one another, and of their characters; it likewiſe contains ſome general deſcriptions and ſpecific diſtinctions.

From this ſhort view of the method and contents of Ariſtotle's hiſtory of animals, the general deſign of the author may be collected. He begun with inveſtigating the manners, diſpoſitions, and ſtructure of individuals. Ariſtotle was enabled to execute this important taſk to more advantage, perhaps, than any other perſon either before or ſince his time. Not to mention the extent of his own genius, Alexander provided him with live animals from every quarter of the then known world. Theſe were ſupported by the munificence

ficence of a monarch who merited the epithet of Great, not for the boundleſs ambition of his heart, not for the ſlaughter of millions of his own ſpecies, but for the protection and encouragement he afforded to the greater Ariſtotle.

After ſpending much time and labour in inveſtigating the characters and diſpoſitions of animals; after making repeated experiments in order to diſcover the ſecret ſprings of their actions, the extent of their capacities, their affections and averſions; after ſatisfying himſelf with regard to theſe and many other intereſting articles, Ariſtotle's next object was, how to digeſt thoſe materials ſo as beſt to promote the ſcience of nature. To give a particular deſcription and hiſtory of every individual neither correſponded with the genius of the author, nor with the ſtate of the ſcience at that time. To inveſtigate the relations and differences which ſerve to connect and diſtinguiſh the various tribes of animals, was the capital object of the learned author. Like the great Bacon, inſtead of retailing idle fictions, or facts founded only upon ignorance and credulity, Ariſtotle perceived the neceſſity of aſcertaining the genuine principles of the ſcience by actual experiments. Some idea may be formed of the number of thoſe experiments, and the judgment with which they were conducted, by the extenſive and accurate concluſions the author has drawn from them. Whoever reads Ariſtotle's hiſtory of animals with the ſame view with which he reads ſome modern authors will be greatly diſappointed. Trifling anecdotes, marvellous feats of ſtrength, ferocity, or cunning, addreſſed to the imagination in the language of declamation, are not to be expected in the works of an Ariſtotle.

His chief object was to reduce into a ſcientific form a branch of natural

natural knowledge, which had hitherto conſiſted only of a chaos of detached, uncertain, and often fabulous narrations and deſcriptions. The happy circumſtances in which he was placed, joined to the uncommon abilities with which this extraordinary perſon was endowed, enabled him to unfold the principles of natural hiſtory with ſuch amazing ſucceſs, that, to this day, no ſyſtem has been attempted, the principles of which have not evidently been derived from Ariſtotle. Analogies and diſtinctions are not only drawn from magnitude, figure, faculties and diſpoſitions of mind, but from the inſtruments of motion, the teeth, the eyes, the genitals, and, in a word, from every external and internal part of the body.

Having ſaid ſo much on what appears to be the nature and deſign of Ariſtotle's hiſtory of animals, it now becomes neceſſary to diſcloſe the principal intention of being ſo particular.

The eloquent M. de Buffon, and his learned and induſtrious friend M. Daubenton, declared enemies to methodical arrangement themſelves, betray a ſtrong inclination to preſs this illuſtrious ancient into their ſervice. They allege, that Ariſtotle, ſo far from having a deſign to eſtabliſh the *principles of ſyſtem*, ſhows a ſovereign contempt for methodical diſtribution, not only by the plan he has followed, but in different parts of the work itſelf; and yet, by way of compliment to the author, they ſay, " that it is neceſſary to go back " to the days of Ariſtotle for the general *principles of the diviſion of* " *animals* *." After mentioning the ſources from which Ariſtotle, in his firſt book, derives the diſtinguiſhing characteriſtics of different animals, theſe gentlemen inſiſt, that the author never meant them to be

* Hiſt. Nat. par Buffon, vol. 4. p. 142.

be the foundation of a modern nomenclature or ſyſtem, ſimilar to thoſe of Ray or Linnaeus *.

With regard to this we are perfectly agreed, but for a very different reaſon. Ariſtotle ſaw the perplexed ſtate of the ſcience, or rather perceived that the natural hiſtory of animals had not hitherto been reduced to a ſcientific form. He therefore applied the whole force of his mind towards the inveſtigation of general principles, to ſerve as a baſis for ſyſtem, and as a model for future writers. But, after the labour of many years, and encountering numberleſs difficulties, even making every allowance for the extent of his capacity and foreſight, it can hardly be ſuppoſed that Ariſtotle could ever conceive the poſſibility of a ſyſtem ſo perfect as either that of Ray or Linnaeus.

Buffon and Daubenton further allege, that Ariſtotle was too well acquainted with the nature of animals, to attempt a regular diviſion of them into claſſes, orders, genera, and ſpecies; that he only uſed generic terms in compliance with the ideas of the vulgar, who uniformly give the ſame name to objects endowed with ſimilar qualities; but that he formally proſcribes all ſubdiviſions of the genus, as being partly forced, partly impoſſible; and becauſe, in forming the different branches of thoſe ſubdiviſions, objects are ſeparated and diſperſed which ought always to be placed under one point of view: Beſides, that, in ſubdividing the genus, we are obliged to uſe negative characters: That Ariſtotle rejects negative characters, becauſe no diſtinctions or relations can be eſtabliſhed upon an idea of privation, and becauſe a thing which does not exiſt cannot be divided into ſpecies †.

This

* Hiſt. Nat. par Buffon, vol. 4. p. 143.

This repreſentation of the ſentiments of Ariſtotle concerning methodical arrangement induced me to peruſe his hiſtory of animals with more than ordinary attention; and, if I am not greatly miſtaken, I have diſcovered the only reaſon which could induce the author to drop a few expreſſions which, at firſt view, ſeem to juſtify Buffon and Daubenton's opinion.

Whoever reads the book will ſoon perceive that the word *genus* is often uſed in the ſame ſenſe as *claſs* or *order* among the moderns; and ſometimes it is limited to the ſame idea that *we* affix to genus *. This circumſtance frequently gives riſe to ambiguity.

Our author, as formerly obſerved, never intended to give a particular deſcription and hiſtory of every ſpecies. Man being the principal and beſt known animal in the creation, Ariſtotle takes him as a ſtandard, and deſcribes minutely his whole frame and movements. In deſcribing the inferior tribes of animals, he ſeldom deſcends to minutiae, but keeps chiefly in view their relations and diſcrepancies. Ariſtotle's book, therefore, is not a natural hiſtory of animals in the modern ſenſe of theſe words. It conſiſts only of philoſophical diſſertations on the general ſtructure, manners, and diſpoſitions of animated beings. If any perſon wiſhes to learn Ariſtotle's account of the lion, tiger, horſe, elephant, or any other animal,

* Sunt autem genera ſumma quaedam, quibus animalia diſtinguuntur. Sunt vero haec: *Unum* avium; alterum piſcium; tertium cetorum; quae omnia conſtant ſanguine. Eſt et *aliud* eorum genus, quae teſta conteguntur, quod oſtream appellatur. Item *aliud*, quod molliore teſta operitur; caeterum nomine uno comprehenſum eſt; quales locuſtae et cancrorum genera quaedam, atque gammarorum. Praeterea aliud molluſcorum; cujuſmodi lolligines, et lollii, et ſaepiae. Poſtremo, inſectorum quoque *genus* eſt, quae omnia carent ſanguine.—*Ariſt. Hiſt. Animal. edit. Scalliger. lib.* 1. *cap.* 7.

mal, he muſt peruſe the whole work before he can collect every thing the author has ſaid concerning them. His facts and obſervations are numerous; but, with regard to particular animals, theſe are not to be found in one place, nor in treating of an individual ſubject in the form of a continued hiſtory. On the contrary, his facts are always employed to ſupport the principles which he at the time is endeavouring to eſtabliſh.

To an author compoſing a book upon Ariſtotle's plan, therefore, a ſcrupulous ſubdiviſion of the different claſſes or genera could have anſwered no uſeful purpoſe. In eſtabliſhing or inveſtigating general principles, it is neceſſary to have a free and unlimited range through the whole circle of nature. Accordingly Ariſtotle, in treating of generation, the ſenſes, the inſtruments of motion, &c. inſtead of taking an individual for his ſubject, gives all the varieties that can be collected from the whole animal creation: And this conduct he uniformly purſues, whatever be the ſubject he is handling.

Such being the plan of our author, it ſurely cannot ſurpriſe any perſon to ſee him occaſionally obſerving, "that as many animals "are poſſeſſed of ſome common qualities, it is unneceſſary to treat "of theſe qualities as ſeparately exiſting in different ſubjects."

It is an obſervation as old as Pliny, that there is not any book from which a man may not learn ſomething: And it may likewiſe be obſerved, that, when a man reads with a view to ſupport a preconceived opinion, there is hardly any book in which he will not at leaſt imagine that he has found ſomething to his purpoſe. We will venture to affirm, that no man, who had not previouſly determined to condemn the methodical diſtribution of animals, could have ever

diſcovered that Ariſtotle had the ſmalleſt inclination to be of the ſame opinion. Inſtead of endeavouring to learn the general deſign of the book before us, were we, in imitation of Buffon and Daubenton, to pick out all the paſſages that actually favour methodical arrangement, this chapter would be enormouſly ſwelled with quotations.

§ 2. Of PLINY, the Elder.

After reading Ariſtotle, it is natural to expect that every ſucceeding writer upon the ſubject of animals would have either adopted his principles or endeavoured to improve them. But, on peruſing the works of the ſucceſſors of that great philoſopher, this expectation is by no means gratified. Ariſtotle demonſtrated the neceſſity of method and of accurate deſcription. But, inſtead of following his example, the very idea of method, whether natural or artificial, ſeems to have been almoſt entirely loſt for many centuries. Had the ancients been more explicit in their deſcriptions of natural bodies, their inattention to method might eaſily have been pardoned. But, with regard to this moſt eſſential article, they are ſo exceedingly defective, that it is often impoſſible to diſcover the ſubject of which they are treating. They ſuppoſe the reader to know every ſubſtance merely by the name they chuſe to give it. If any character by which the body may be diſtinguiſhed appears in their writings, it ſeems to eſcape from the author as it were by accident. Even when a deſcription is attempted, the permanent and eſſential characters are generally miſſed; and nothing but accidental and mutable characters, or, which is ſtill worſe, characters that equally belong to other ſubſtances, are exhibited. Nay, in deſcribing ſpecies, the characters of the

the genus itſelf are often totally omitted *. Were it difficult to demonſtrate the utility of methodical diſtribution by arguments of a different nature, it would be ſufficient to refer the oppoſers of method to the ancient writers of natural hiſtory, to ſhew how much confuſion and ambiguity the want of ſuch diſtribution occaſions.

But, although the ancient naturaliſts were not ſo attentive to method and accuracy of deſcription as could be wiſhed, we muſt not therefore ſuppoſe them to be deſtitute of merit. On the contrary, their writings are diſtinguiſhed by a grandeur and elevation of ſentiment which few moderns have been able to reach. Deſpiſing every thing that appears to be trifling or inſignificant, they exalt our ideas of nature, and are particularly ſollicitous to ſhew that all her productions anſwer ſome uſeful purpoſe to mankind.

The want of method and preciſion of deſcription is peculiarly to be regretted in the works of the learned and laborious Pliny. His genius was too comprehenſive to be limited to any branch of natural hiſtory. His ideas of this ſubject were not confined to animals, vegetables, and minerals, but extended to every production of Nature exhibited either in the heavens or the earth. Agreeably to theſe ideas, Pliny's Hiſtory of Nature, beſides a hiſtory of the animal, vegetable, and mineral kingdoms, comprehends an abridgement of all that the ancients knew in geography, aſtronomy, botany, agriculture, gardening, medicine, the liberal arts, &c. His ſtyle is conciſe, nervous, and elevated. His knowledge is profound, and his method of reaſoning clear and philoſophical. But, as it is foreign to our preſent deſign, to give an account of Pliny's manner

* Vid. Plin. Hiſt. Nat. cap. 8. et alibi paſſim.

of treating every ſubject, we ſhall confine ourſelves to his hiſtory of animals.

Pliny, in this part of his work, begins with man. He does not, however, like Ariſtotle, give a deſcription of the ſtructure of the human body. His chief objects are the external figure of men, the diſpoſitions, manners, and cuſtoms of different nations. Here our author diſcovers an extenſive erudition, and a deep knowledge of human nature.

A ſtrange mixture of character, however, appears in moſt parts of Pliny's writings. A mind ſtored with every ſpecies of literature, a refined taſte, a ſceptical ſcrutinizing temper, combined with a conſiderable portion of ſuperſtition and credulity. He gravely tells us of a certain northern nation, called Arimaſpi, who have but one eye in the middle of their foreheads; of a country inhabited by wild men with their feet behind their heels; of a nation of hermaphrodites mutually impregnating each other; of a people with a couple of pupils in each eye; of a ſpecies of men with dogs heads; of another ſpecies with eyes in their ſhoulders; of a third ſpecies who have no mouths, and are nouriſhed ſolely by ſmelling, &c. A number of extravagancies of this kind are to be found in the ſecond chapter of the 7th book. Pliny indeed generally quotes his authorities for ſuch abſurdities; but, from his manner of writing, and his arguments in favour of this ſpecies of credulity contained in the firſt chapter of the ſame book, it is plain, that he firmly believed, or at leaſt means that his readers ſhould believe, moſt of thoſe ridiculous chimeras.

After mankind, Pliny treats of land-animals, as diſtinguiſhed from

from aquatics. In this part of his ſubject he obſerves not the leaſt veſtige of order. It is a mere jumble of quadrupeds, ſerpents, frogs, lizards, &c. Next follow the aquatic animals; then the birds; and, laſtly, the inſects. The order in which theſe laſt claſſes are treated is exactly of a piece with that in the firſt claſs. Beſides, he even mixes and confounds the very order which he ſeems to follow *.

Upon the whole, notwithſtanding Pliny's deficiencies with regard to method and deſcription, his hiſtory contains the greateſt part of the natural knowledge of the ancients, compiled indeed from other authors, but managed with ſuch taſte and addreſs, that the whole has the appearance of an original compoſition.

§ 3. Of ÆLIAN.

This author was a Roman, and lived under the Emperor Adrian. He was, however, ſo fond of the learning of the Greeks, that, in his compoſitions, he preferred their language to his own. Though he has written upon other ſubjects, he acknowledges, that his genius had a peculiar bias towards natural hiſtory. He therefore choſe that ſubject for his principal work, which he entitled, *Of the Nature of Animals.*

The work is divided into ſeventeen books: Theſe diviſions do not reſult from the nature of the compoſition, but ſeem to have been made merely for the conveniency of the reader. Ariſtotle, as a natural hiſtorian, aſtoniſhes us with extent of knowledge and depth of penetration: The amiable Ælian addreſſes himſelf, in the gentleſt manner,

* Vid. Plin. Hiſt. Nat. lib. 8. 9. 10. 11.

manner, to our reaſon and imagination, warms our hearts with the love of virtue, and excites a ſovereign contempt of every action or ſentiment beneath the dignity of our nature.

Ælian's favourite aim was, to rouſe the ſentiments and enforce the practice of genuine morality. Arguments drawn from the beauty of virtue and the deformity of vice were as common and as ineffectual in his days as in ours. He therefore laid hold of another and more powerful principle of human nature. Being well acquainted with the manners and diſpoſitions of the animal creation, inſtead of painting human heroes and human miſcreants, Ælian ſtimulates our pride by the generoſity, friendſhip, gratitude, courage, meekneſs, reſignation, modeſty, parental affection, and temperance, exhibited in the characters of particular animals; and excites our averſion by the illiberality, ſelfiſhneſs, ingratitude, puſillanimity, ferocity, impatience, obſcenity, unnaturality and gluttony, diſplayed in the diſpoſitions of others.

In compoſing a book with this view, we cannot ſuppoſe that the author would find it neceſſary to cramp himſelf with a ſtrict connection in the different parts of his work, far leſs to write in the form of a ſyſtem. Ælian's whole book, on the contrary, conſiſts of unconnected anecdotes concerning animals, either derived from his own experience or collected from the writings of others. In the 37th chapter of the eleventh book, however, he has occaſionally collected Ariſtotle's principles of the diviſion of animals, and reduced them into ſuch order as would make no contemptible figure in a modern ſynopſis. Ariſtotle's chief attention was directed to the external and internal ſtructure of animals, in order to aſcertain the principles and facilitate the ſtudy of natural hiſtory. Ælian ſteers an oppoſite courſe.

courſe. He ſeldom or never takes notice of external forms or qualities, but confines himſelf entirely to mental character and diſpoſitions. It requires no depth of penetration to diſcover many anecdotes which have the air of fable and credulity: But a reader endowed with a moderate ſhare of good nature will find little difficulty in pardoning faults of this kind. The author has enriched his work with a multitude of genuine and unconteſted facts. If he ſometimes relates ſtories that require more faith than his reader is poſſeſſed of, he generally either quotes his authority, or gives a hint that he does not believe them himſelf. Beſides, in many ſtories of this kind, it is eaſy to perceive that the moral is Ælian's principal object.

§ 4. Of OPPIAN.

Oppian was a native of Cilicia, and flouriſhed under the Emperors Severus and Antoninus Caracalla. He compoſed two excellent poems in the Greek language, and preſented them to Antoninus, who was ſo delighted with them that he recalled Ageſilaus, Oppian's father, from baniſhment, and farther rewarded the author with a piece of gold for every verſe. The ſubjects of thoſe poems are fiſhing and hunting. Though Oppian died in his 30th year, his poems diſcover a brilliancy of genius, a correct taſte, a maturity of judgment, and a compleat knowledge of ancient learning. Natural hiſtory, however, ſeems to have been his favourite ſtudy. In his poem on fiſhing, a vaſt variety of fiſhes are deſcribed with ſurpriſing accuracy and minuteneſs; and, in the poem upon hunting, the principal quadrupeds are painted in lively colours. Oppian does not, however, confine himſelf to deſcription alone: He frequently gives a pretty compleat

compleat hiſtory of the manners, diſpoſitions, and œconomy of the different animals introduced in his poems. Although, from the nature of the performance, we cannot expect that the author ſhould write in a ſyſtematic ſtrain; yet he diſcovers an intimate acquaintance with the principles upon which ſyſtem is founded. It is remarkable, that Oppian, though poſſeſſed of a warm poetical fancy, has rejected moſt ſtories that favour of fiction and credulity.

§ 5. Of GESNER.

Conrad. Gesner a phyſician at Turin, publiſhed a natural hiſtory of animals in the year 1551-58, conſiſting of four large volumes in folio. The ſubdiviſions of his claſſes are entirely regulated by the letters of the alphabet, and conſequently deſerve no further notice. He indeed makes an apology for this conduct. He allows that methodical diſtribution is more philoſophical; but he prefers the alphabetical arrangement on account of his numerous philoſophical obſervations, which he conſiders as the moſt valuable part of his work. As this author has collected every thing that had been ſaid upon animals by ancients and moderns, by poets, philoſophers, phyſicians, ſhepherds, grammarians, &c. in all countries and languages, his work may be of uſe to ſome readers; but his prolixity is inſufferable, particularly his philological diſcuſſions. In a word, Geſner's natural hiſtory may be conſidered as a rude quarry from which ſome valuable ſtones may be dug; but the labour of removing the rubbiſh overbalances their intrinſic worth. In the hiſtorical part, there are many valuable anecdotes, blended with a variety of fabulous impertinences.

§ 6.

§ 6. Of WOTTON.

In the hiſtory of particular ſciences, there appears, at certain periods, a ſtrange inattention to facts and principles previouſly diſcovered. Ariſtotle, above two thouſand years ago, unfolded the principles of natural hiſtory in the moſt ſimple and perſpicuous manner. But the ſpirit and deſign of his book were either never fully underſtood or unaccountably neglected by all the ſubſequent writers upon this ſubject, till towards the middle of the 16th century.

At this period, there aroſe, in different parts of Europe, ſeveral learned and ingenious naturaliſts, who perceived that all animated beings were connected by certain mutual relations; that theſe relations had been too much neglected by preceding authors: and that this inattention to the order and concatenation of objects was the principal reaſon why the knowledge of nature was ſo little cultivated, and ſo difficult to be attained. Methodical arrangement, therefore, became a capital object of attention; and moſt writers after this period were more or leſs ſucceſsful in their arrangements, according to the acuteneſs of their obſervation, and the extent of their capacities.

Edward Wotton, a phyſician at Oxford, compoſed a volume upon the diſtinguiſhing characteriſtics of animals, which was publiſhed at Paris in the year 1552, and inſcribed to Edward VI. King of England *.

He begins with an enumeration of the peculiar qualities by which

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* Edwardi Wottoni Oxonienſis de differentiis animalium libri decem. Lutetiæ Pa-

the various ſpecies of animals are diſtinguiſhable from each other: Theſe diſtinctions are derived from a multiplicity of circumſtances; from the ſenſes, external and internal parts, the food, affections and averſions, manners, colour, actions, inſtruments of motion, the elements in which they live, their modes of generating and producing, &c. Having executed this part of the work with great judgment and learning, Dr Wotton proceeds to give a more particular account of the genera and ſpecies, which he claſſes in the following manner:

I. Sanguineous, or animals with red blood.
II. Exangueous, or animals with tranſparent or colourleſs blood.

The firſt claſs is divided into five orders, viz. 1. Man, as being the head of the animal creation. 2. Viviparous quadrupeds. 3. Oviparous quadrupeds and ſerpents. 4. Birds. 5. Fiſhes.

The ſecond claſs he divides into two orders, viz. 1. Inſects. 2. Exangueous aquatic animals.

The viviparous quadrupeds are ſubdivided into, 1. Digitated, or toed, as apes, dogs, &c. 2. Cloven-hoofed, as the cow, the ſheep, &c 3. Whole-hoofed, as the horſe, the aſs, &c. Under oviparous quadrupeds are comprehended frogs, lizards, &c. Serpents are added on account of their ſimilarity.

The birds are ſubdivided into, 1. Fidipedes, or ſuch as have unconnected toes, as the gallinaceous kind, &c. 2. Carnivorous, as the eagles, vultures, &c. 3. Aquatic birds, which are again diſtinguiſhed into ſuch as frequent the ſhores and marſhy places, as the cranes, the ſnipes, &c. and ſuch as are web-footed, as ducks, &c.

The

The fiſhes are ſubdivided into, 1. Cartilaginous, plain, oblong, and long. 2. Saxatiles, or thoſe which frequent ſtony places. 3. Cetaceous, or the whale-kind.

The inſects are ſubdivided into, 1. Such as build neſts or combs, as the bee, waſp, &c. 2. Such as are furniſhed with a proboſcis. 3. Such as have their wings incloſed in a cruſtaceous ſheath, as beetles, &c. 4. Caterpillars.—To the arrangement of the inſects, our author ſeems to have paid leſs attention than to that of the other orders of animals; for he has not availed himſelf of many excellent diſtinctions which he had pointed out in the beginning of his ninth book.

The exangueous aquatic animals are ſubdivided into, 1. Soft, as the cuttle-fiſh, &c. 2 Cruſtaceous, as lobſters, crabs, &c. 3. Teſtaceous, or ſhell-animals. 4. Zoophyta, as the ſpongia, &c.

Dr Wotton's deſcriptions are not only conciſe and elegant, but the œconomy and diſpoſitions of the different animals are painted in a lively and entertaining manner. His taſte in compoſition is chaſte and unaffected. Though well acquainted with the writings of the ancients, he does not encroach on the patience of his readers, or augment the ſize of his book, by unneceſſary and tedious quotations.

§ 7. Of BELONIUS.

Petrus Belonius publiſhed a volume de Aquatilibus, at Paris, in the year 1552. Under aquatic animals, Belonius comprehends the cetaceous fiſhes, the hippopotamus, the otter, the water-rat, and

other amphibious animals. He divides the whole into two orders, viz. the Sanguineous and Exangueous. The ſanguineous he ſubdivides into viviparous, as the whale, the dolphin, the hippopotamus, &c. Oviparous, as the crocodile, &c. Cartilaginous, which laſt he again ſubdivides into viviparous and oviparous, ſpinous, broad, and oblong fiſhes; fiſhes which reſemble ſerpents; and what he calls the leſſer ſpinous, ſcaly fiſhes, which he diſtributes into pelagii, or fiſhes found only at great diſtances from the ſhores; littorales, or thoſe which frequent the ſhores; ſaxatiles, or thoſe which frequent rocks and ſtony places; and, laſtly, the amnici and lacuſtres, or thoſe found in rivers and lakes.

In the 1555, Belonius, or Belon of Maine, publiſhed another volume upon birds, which he arranges in the following manner:

Order I. Rapacious birds, both diurnal and nocturnal, as eagles, vultures, owls. II. Water-fowl, or thoſe which are web-footed, and ſwim in water, as the ſwan, pelican, ducks, &c. III. Birds which frequent banks of rivers, and marſhy places, and are not web-footed, as the crane, the heron, &c. IV. Land-fowl, which build their neſts upon the ground, as partridges, &c. V. Birds which frequent almoſt every place, and which live upon different kinds of food, as crows, pies, parrots, woodpeckers, &c VI. Small birds which build their neſts in hedges and buſhes: Theſe are ſubdivided into inſectivorous, granivorous, and ſuch as feed indifferently either upon inſects or grain.

The author diſcovers an extenſive knowledge of his ſubject, and a tolerable taſte in compoſition, which is more conciſe, leſs embarraſſed

raſſed with quotations, and the ideas are clearer and better arranged than in the writings of moſt of his cotemporaries.

§ 8. Of RONDELETIUS.

In the year 1554, Rondeletius, a profeſſor of medicine at Montpelier, publiſhed a work, De Piſcibus. The firſt four books are entirely occupied with the diſtinguiſhing characters of fiſhes. Thoſe characters are taken from the external and internal figure of the parts; from the manners and diſpoſitions; from the food, the places frequented by different kinds, and many other circumſtances. He diſtributes all fiſhes into two orders, viz. I. Sanguineous. II. Exangueous. The fiſhes comprehended under the firſt order are ſubdivided into, 1. Broad, compreſſed, ſcaly fiſhes, as the aurata, ſparus, &c. 2. Saxatiles. 3. Small fiſhes. 4. What the author calls the lizard-kind, as the acus, &c. 5. Round, uncompreſſed, ſcaly fiſhes, as the lupus, aſellus, &c. 6. Fiſhes ſtill rounder than the former, of a reddiſh colour, and having a thick head, as the mullet, milvus, &c. 7. Plain fiſhes, not cartilaginous, as the ſoal, &c. 8. Plain cartilaginous fiſhes, as the raiæ, &c. 9. Long fiſhes, as the conger, &c. 10. Foreign fiſhes, as the orbs, &c. 11. Cetaceous fiſhes, as the whale, &c.—The ſecond order, viz. the exangucous, he divides into, 1. Teſtaceous, or ſhell-fiſh, which conſiſt either of one or a double ſhell. 2. Turbinata and cochleæ. 3. Inſects and zoophytes.

Rondeletius was ſo fully convinced of the neceſſity of methodical arrangement, that he frequently mentions the impoſſibility of diſtinguiſhing one object from another, without having recourſe to the va-

rious marks by which the productions of Nature are characterised *. The first fish he describes is the aurata; but he anxiously guards his reader from imagining that he does so because the name of the animal begins with the letter A †. Rondeletius describes with accuracy and fidelity: His taste in composition is still more chaste than that of Belonius.

§ 9. Of SALVIANUS.

Hippolytus Salvianus, a professor of medicine at Rome, published, in the year 1557, a large folio volume, entitled, Aquatilium Animalium Historia. This book contains the description and history of about 100 fishes, with figures drawn from the life, and engraved on copperplate with surprising taste and elegance. As the author confined himself entirely to such fishes as he had seen and examined, it was unnecessary for him to discover any solicitude about systematic arrangement. His descriptions are minute and accurate; but the reader is frequently embarrassed and interrupted with useless quotations from the antients.

§ 10.

* Quid enim esset aliud inter nos quam chaos quoddam et rerum omnium confusa congeries, nisi forma, colore, aliisque hujusmodi internoscerentur? Quo pacto lapides, herbæ, pisces, a se discernerentur, si per omnia similes sibi-ipsis essent? Ne illa quidem linguarum confusio in Babel tantum unquam negotii exhibuit, quantum illa rerum omnium similitudo exhibuisset! Rondelet. de pisc. lib. 2. p. 31.

† Nolim autem quemquam existimare, ideo nos Auratam primum depingere, quod ab A litera incipiat. Hunc enim ordinem per literarum elementa, non minus in piscium quam in herbarum descriptionibus, vitiosum esse existimamus; et hunc secutos iure quidem a Dioscoride reprehensos fuisse. Rondelet. de pisc. lib. 5. p. 113.

§ 10. Of ALDROVANDUS.

Ulysses Aldrovandus practiſed as a phyſician at Bononia in Italy. He wrote a ſyſtem of natural hiſtory conſiſting of 12 folio volumes. Several of them were publiſhed after his death, which happened about the end of the 16th century. This voluminous author was ſo ſenſible of the abſurdity of attempting to communicate ſcience without method, that he expreſſes a degree of indignation againſt many of his predeceſſors, who, for want of genius to diſcover even the moſt obvious relations of nature, had recourſe to an alphabetical arrangement *.

Aldrovandus diſtributes the animal kingdom into ſix claſſes, viz. I. Quadrupeds. II. Serpents. III. Birds. IV. Fiſhes. V. Inſects. VI. Exangueous animals, or animals with colourleſs blood.

I. Quadrupeds.

These he ſubdivides into three orders. 1. Whole-hoofed. 2. Cloven-hoofed. 3. Digitated or toed.

In the firſt order, viz. the whole-hoofed animals, he begins with the horſe, becauſe he is the moſt uſeful to mankind; then follow the aſs, the mule, the unicorn, and the elephant.

The

* Qui alphabeticum in ſcientiis ordinem ſecuti ſunt, ut Paulus Ægineta, Avicenna, &c. ſemper mihi diſpliciuerunt, quod, rerum ſpecies commiſcentes, quæ ſimilis naturæ ſunt, ideoque conjungenda, diſtrahant; quæ vero plurimum a ſe mutuo diſcrepant, ideoque diſtinguenda, contra connectant, Naturæ ordinem turbent, ſcientiorumque methodum omnem invertant, ac confundant. Aldrov. Ornithol. p. 7.

The ſecond order conſiſts of the cow, bull, and ox; the urus, bonaſus, buffalo, ſheep-kind, goat-kind, rhinoceros, camel, camelopard, and ſow.

The third order is ſubdivided into viviparous and oviparous. The viviparous are again ſubdivided into feræ, or ſavage animals; ſemiferæ, or wild animals; and domeſtic animals. Under feræ are arranged, the lion, lynx, tiger, bear, wolf, &c. The ſemiferæ comprehend the fox, ape-kind, caſtor, &c. And under domeſtic are contained the dog and cat.—The oviparous, as the frog, the toad, lizards, &c. are placed laſt becauſe of their ſtupidity and want of dignity.

II. Serpents.

They are divided into two orders: 1. Thoſe who have no feet. 2. Thoſe who have feet.

III. Birds.

These are arranged into three orders: 1. Rapacious. 2. Granivorous. 3. Aquatic birds, and thoſe who frequent the ſhores.

The rapacious, or birds with crooked claws, and generally carnivorous, he ſubdivides into, 1. Diurnal, who ſeize their prey in the day, as the eagles, hawks, and falcons. And, 2. Nocturnal, who prey during the night, as the owl, the bat, &c. Here he ſubjoins the parrot tribe, on account of the general ſtructure of their bodies, and becauſe they eat fleſh when in a domeſtic ſtate.

The

The granivorous comprehends the peacock, turkey, pheaſants, and partridges. Here he makes two ſubdiviſions: 1. The baccivorous, or berry-eaters, as the thruſh, the ſtarling, &c. 2. The vermivorous, or inſect-eaters, as the ſwallows, motacilla, &c. He ſubjoins a ſection upon ſinging birds, as the nightingale, lark, goldfinch, &c.

The aquatic birds are divided into, 1. Web-footed, as the ſwan, pelican, ducks, &c. 2. Littoral, or thoſe which frequent ſhores, banks of rivers, and marſhy places, as the ſtork, the cranes, the woodcock, &c.

IV. Fishes.

Theſe our author arranges into ſix orders: 1. Saxatiles, or thoſe which frequent ſtony places. 2. Littorales, or thoſe found near the coaſts. 3. Pelagii, or ſuch as are only found at great diſtances from the ſhores. 4. Thoſe which both frequent the ſea and rivers. 5. River-fiſh. 6. Whales, or cetaceous fiſhes.

V. Insects.

This claſs conſiſts of two orders: I. Terreſtrial. II. Aquatic. The firſt order is divided into inſects with feet, and inſects without feet. The inſects furniſhed with feet are again ſubdivided into, 1. Thoſe with, and thoſe without, wings. 2. Inſects having elytra, or whoſe wings are ſheathed in a cruſtaceous covering, as the beetles, &c. and inſects which have no elytra. 3. Naked-winged inſects have either (1.) four membranaceous wings, as the bee, the waſp, &c. or, (2.) four farinaceous wings, as the butterflies, &c. 4. Two-winged inſects, as the domeſtic fly, &c. Inſects without wings are

divided into, 1. Thoſe which have few feet, i. e. from 6 to 14, as the ant, the ſcorpion, &c. 2. Thoſe which have many feet, as the millipes, &c.—There is no ſubdiviſion of the inſects that want feet, as the earth worm, &c.

The ſecond order, or aquatic inſects, is likewiſe divided into thoſe which have feet; as the muſca fluviatilis, and thoſe which have no feet, as the leech, &c.

VI. Exangueous.

Theſe are divided into, 1. Soft, as the cuttle-fiſh, &c. 2. Cruſtaceous, as lobſters, crabs, &c. 3. Teſtaceous, or ſhell-fiſh. 4. Zoophyta, as the pulmo marinus, &c.

This diſtribution of animals, though inaccurate in many reſpects, is by no means contemptible. Aldrovandus's principles of arrangement are numerous; but they are frequently unphiloſophical. For example, in the claſs of fiſhes, the principle of arrangement, inſtead of being derived from qualities peculiar to the animals themſelves, is taken ſolely from the places which they moſt commonly frequent. What he ſometimes calls dignity, ſometimes utility, ſometimes genius, or mental abilities, is another principle of diviſion which he attempts to follow through all his claſſes. This often leads him into an unneceſſary train of ridiculous argument, in ſettling the precedency of animals, whoſe hiſtory is ſtill too little known to admit of ſuch reaſoning.

With regard to the execution of the work itſelf; the deſcriptions are in general good. The hiſtorical part is frequently debaſed with fable

fable and credulity. The manner of writing is deeply marked with the falſe taſte of the age in which the author lived; and the whole is enormouſly ſwelled with long quotations from poets, grammarians, and commentators, and other ſuperfluous matter.

§ 11. Of JONSTON.

Dr John Jonſton, a phyſician at Leſzno in Poland, publiſhed a ſyſtem of Natural Hiſtory at Amſterdam, in the year 1657. This author's chief aim was, to give an abridgement of the voluminous works of Geſner and Aldrovandus: He has likewiſe added the American animals from Margraaf and Piſo. He digeſts the whole into five general claſſes. I. Quadrupeds. II. Birds. III. Fiſhes. IV. Inſects. V. Serpents. He firſt publiſhed the fiſhes, next the birds, then the quadrupeds, and, laſtly, the inſects and ſerpents.

The quadrupeds are arranged into the following orders: 1. Whole-hooſed. 2. Cloven-hooſed; which laſt are ſubdivided into ruminating animals with, and without horns, and ſuch as do not ruminate. 3. Digitated viviparous animals, which are either terreſtrial or aquatic; and digitated oviparous animals, which are either covered with ſhells, or have no ſhells.

There are two orders of birds: 1. Land-fowls. 2. Water-fowls. The firſt order is ſubdivided into carnivorous; granivorous which do not ſing; granivorous ſinging birds; inſectivorous that do not ſing; and inſectivorous ſinging birds. The ſecond order is ſubdivided into, web-footed aquatic birds, which feed upon fiſhes; web-

footed herbivorous birds; carnivorous, inſectivorous, and herbivorous aquatic birds, with divided toes.

The claſs of fiſhes is ſubdivided into the following orders: 1. Pelagii. 2. Saxatiles. 3. Littorales marini. 4. Fiſhes which frequent both rivers and the ſea. 5. Fiſhes which live only in rivers and lakes.

The orders of inſects are, 1. Terreſtrial inſects furniſhed with wings and feet. 2. Terreſtrial inſects which have feet, but not wings. 3. Terreſtrial inſects without feet. 4. The exangueous, which are ſubdivided into ſoft, cruſtaceous, and teſtaceous. 5. Zoophytes.

The ſerpents are diſtinguiſhed into terreſtrial, aquatic, and dragons without and with wings.

Dr Jonſton has conſiderable merit in abridging the enormous volumes of Aldrovandus and Geſner: His merit would have been ſtill greater, if, inſtead of abridging, he had totally rejected the accounts of many fictitious animals deſcribed and painted by theſe authors.

§ 12. Of WILLOUGHBY.

Francis Willoughby, Eſq; was the only ſon of Sir Francis Willoughby of Middleton in the county of Warwick. His amiable character, both as a gentleman and ſcholar, may be ſeen in Mr Ray's preface to the tranſlation of Willoughby's Ornithology, publiſhed in the year 1678. Mr Willoughby died in July 1672, when he

he was only in the 37th year of his age. After his death, Mr Ray having examined his manuſcripts, found the quadrupeds, birds, fiſhes, and inſects digeſted into a new method, but few of their deſcriptions and hiſtories ſo perfect as the author had intended. Thoſe defects, however, were afterwards ſupplied, at leaſt with regard to the birds and fiſhes, and publiſhed by Mr Ray himſelf. The ornithology appeared in Latin in the year 1676, and the hiſtory of fiſhes in the 1686, each of them accompanied with copperplate figures of the different ſpecies.

The deſign of the author cannot be better repreſented than in the words of Mr Ray: 'As for the ſcope of this undertaking, it was 'neither the author's, nor is it my intention, to write pandects of 'birds, which ſhould compriſe whatever had been before written of 'them by others, whether true, falſe, or dubious, that having been 'abundantly performed by Geſner and Aldrovandus. But our main 'deſign was to illuſtrate the hiſtory of birds, which is in many par-'ticulars confuſed and obſcure, by ſo accurately deſcribing each 'kind, obſerving their characteriſtic and diſtinctive notes, and re-'ducing all to their proper claſſes and genera, that the reader might 'be ſure of our meaning, and, upon comparing any bird with our 'deſcription, not fail of diſcerning whether it be the one deſcribed, 'or no *.'

But the juſtneſs of Mr Willoughby's ideas concerning the methodical diſtribution of animals will ſtill further appear from the following ſketch of his plan.

BIRDS.

* Preface to the tranſlation of Willoughby's Ornithol.

Birds.

These our author comprehends under two general diviſions, viz. 1. Land-fowl. 2. Water-fowl.

The land-fowl are diſtinguiſhed into, 1. Birds with crooked bills and talons. 2. Birds with more ſtraight bills and claws.

Thoſe with crooked bills or talons are either, 1. Carnivorous and rapacious; or, 2. Frugivorous. 1. The carnivorous are ſubdivided into diurnal and nocturnal. The diurnal are again divided into the leſſer, and the greater. The greater diurnal birds are ſtill further divided into the more generous, called eagles; and the more cowardly and ſluggiſh, called vultures. The leſſer diurnal birds are in the ſame manner diſtinguiſhed into the more generous, called hawks, and which are capable of being taught to fowl; and the more cowardly and ſluggiſh, which, from their want of docility, are neglected by falconers. The generous are again diſtinguiſhed into long-winged, as the falcon, lanner, &c.; and ſhort-winged, as the goſhawk and ſparrow-hawk. The cowardly are divided into the greater, as the common buzzard, bald-buzzard, &c; and the leſſer, which is again divided into the European, as butcher-birds and ſhrikes; and the exotic, or birds of Paradiſe. The nocturnal are either horned, as the eagle-owl, horned-owl, &c.; or without horns, as the crown owl, gray owl, &c. 2. The Frugivorous are diſtinguiſhed into the greateſt kind, called macaws; the middle-ſized, called parrots; and the leaſt kind, called parroquets.

Birds with more ſtraight bills and claws are divided into the great-

eſt, which, on account of the bulk of their bodies and ſmallneſs of their wings, cannot fly, as the oſtrich, the caſſiowary, and the dodo; the middle ſized; and the leaſt kind. The middle ſized are divided into ſuch as have large, thick, ſtrong, and long bills; and ſuch as have ſmaller and ſhorter bills. The large billed feed either promiſcuouſly upon fleſh, inſects, and fruits, and thoſe again are either wholly black, as the crow-kind, or party-coloured, as the pie-kind; upon fiſh, as the kings-fiſher, or upon inſects only, as the wood-peckers. The middle-ſized are diſtinguiſhed, by the colour of their fleſh, into the white, as the poultry-kind; and the black, which are again ſplit into the greater, as the pigeon-kind; and the leſſer, as the thruſh-kind. The leaſt kind, called ſmall birds, are diſtinguiſhed into the ſoft-beaked, or thoſe which have ſlender, ſtraight, and generally pretty long bills, and feed upon inſects; and the hard-beaked, or thoſe which have thick and ſhort bills, and feed moſtly upon ſeeds.

Birds of the ſecond diviſion, water-fowl, are diſtinguiſhed into, 1. Such as frequent waters and watery places, in queſt of their food. 2. Such as ſwim in water.

Thoſe that frequent watery places are divided into the greateſt, as the crane, jabiru, &c.; and the leſſer; which laſt is again diſtinguiſhed into piſcivorous, as the heron, ſpoon-bill, ſtork, &c.; and mudſuckers and inſectivorous. The mudſuckers have very long bills, which are either crooked, as the curlew, whimbrell, &c. or ſtraight, as the wood-cock, godwit, &c. middle-ſized bills, as the ſea-pie, redſhank, &c. or ſhort bills, as the lapwing and plover.

Thoſe that ſwim in the water are divided into cloven-footed, as the coot, &c. or whole-footed. The whole-footed are either

either long-legged, as the flamingo, the avoſetta, &c. or short-legged; which laſt are ſubdivided into ſuch as have three toes, as the penguin, the razor-bill, &c. and thoſe with four toes. The four-toed are again diſtinguiſhed into ſuch as have all the four toes connected by membranes, as the pelican, the ſolan-gooſe, &c. and ſuch as have the back-toe looſe; and theſe laſt are ſubdivided into narrow-billed, and broad-billed. The narrow-billed are diſtinguiſhed into ſuch as have blunt bills, hooked at the point, which are either ſerrated, as the diver, or not toothed, as the puffin, &c.; and ſuch as have ſharp-pointed and ſtraighter bills, which again are either short-winged and divers, called duckers; or long-winged, and much upon the wing, called gulls. The broad-billed are divided into the gooſe-kind, which are larger; and the duck-kind, which are leſſer; and theſe laſt are either ſea-ducks, that dive much; or river and plain-ducks.

FISHES.

Order I. Cetaceous fiſhes, or thoſe which have lungs, are viviparous, and ſuckle their young, as the whale, the dolphin, the porpoiſe, &c.

Order II. Cartilaginous fiſhes, which are viviparous, have no ſcales, and, in place of gills, have on each ſide five oblong holes; have cartilages inſtead of bones; and the males have two appendages connected with the anal fins, which are thought to be mentulae.

The ſecond order, viz. The cartilaginous fiſhes, are divided into the proper, and leſs proper.

The

The proper are ſubdivided into long and cylindrical, and broad and plain fiſhes. The long cylindrical are diſtinguiſhed into ſuch as have longer, and ſuch as have ſhorter ſnouts: Thoſe with longer ſnouts are divided into ſuch as have teeth, and are either deſtitute of prickles, as the white ſhark, the blue ſhark, the ſea-fox, the balance-fiſh, &c.; or furniſhed with prickles, as the hound-fiſh, &c.; and ſuch as have no teeth, as the ſmooth hound-fiſh, &c.: Thoſe with ſhorter ſnouts, as the bounce, &c. are not ſubdivided. The broad and plain fiſhes are ſubdivided into thoſe with thinner tails, and thoſe with thicker tails. The thinner-tailed are either furniſhed with a ſpinous ray, as ſome of the ſea-eagles, &c. or with many prickles, which laſt are again divided into thoſe that are rough, as the white-horſe, thorn-back, &c.; and thoſe which are ſmooth, as the ſkate-fiſh, &c.

The leſs proper cartilaginous fiſhes have cartilage in place of bone; are oviparous, and furniſhed with gills, but have no mentulae; as the frog-fiſh, &c.

Order III. Spinous oviparous fiſhes, or thoſe which, for the moſt part, have prickles adhering to their bodies.

This order is divided into,

1. Plain ſpinous fiſhes, which project themſelves on their ſides when ſwimming, and are either ſhorter and more ſquare, as the turbot, or longer, as the ſole, &c.

2. Eel-ſhaped fiſhes, as the conger, the ſea-ſerpent, &c.

3. Fiſhes with more contracted bodies, and which have no belly-fins, as the orb, the ſun-fiſh, &c.

4. Fiſhes with ſoft and flexible rays in the back fins, which are divided into ſuch as have three back-fins, as the cod-fiſh, the whiting, &c.; ſuch as have two back-fins, as the ling, the tunny-fiſh, the mackerel, &c.; ſuch as have but one back-fin, and inhabit the ſea, as the herring, the pilchards, &c.; and ſuch as have but one back-fin, inhabit rivers, and want teeth, as the carp, the bream, &c.

5. Fiſhes having ſome rays in the back-fins furniſhed with ſharp prickles: Theſe are ſubdivided into ſuch as have two back-fins, the anterior of which has prickly rays, as the pearch, the flying fiſh, &c.; and ſuch as have one back-fin, with the anterior rays prickly and the poſterior ones ſoft, as the ſea-pearch, the ſtickleback, &c.

Mr Willoughby's deſcriptions are ſcrupulouſly accurate and minute. Beſides, where any difficulties occur in diſtinguiſhing one ſpecies from another, he generally ſubjoins a few ſhort marks, the more eaſily to aſcertain their differences. The hiſtorical part is conducted with great candour and modeſty, no facts being admitted but ſuch as either conſiſted with the author's knowledge, or were ſufficiently atteſted by men of learning and credit.

§ 13. Of RAY.

It is an unfortunate circumſtance, that men whoſe inclinations lead them to the cultivation of ſcience are ſo ſeldom endowed with thoſe nicer feelings which are neceſſary to the formation of taſte. A few individuals, impelled by conſtitutional inclination, by accident,

or

or by neceſſity, apply the whole force of their minds to particular ſubjects. By this means new facts, and ſometimes new principles, are diſcovered. But theſe are too often uſhered into the world in ſuch a cold and forbidding manner, that, inſtead of attracting general attention, they are only peruſed by men of ſimilar tempers, who are equally ill qualified to recommend them. Natural hiſtory, a ſcience replete with variety, regularity, utility, and every ſpecies of beauty which can gratify the human intellect, laboured long under the oppreſſion of phlegmatic writers. During this period, the oeconomy of nature was almoſt entirely overlooked. Even thoſe who diſcovered a fondneſs for natural knowledge, inſtead of meeting with applauſe, were often deſpiſed and ridiculed. And, indeed, while naturaliſts continued to be only mere collectors of gnats and butterflies, they perhaps deſerved no better treatment.

In order to propagate a taſte for any ſcience, no other requiſite is neceſſary than a good writer to repreſent it in proper colours. Natural hiſtory, towards the end of laſt century, was powerfully recommended to the attention of mankind by the labours of our illuſtrious countryman, the Reverend Mr John Ray; a man ſo remarkable for ſolidity of learning and correctneſs of taſte, that, from peruſing his valuable works, it is difficult to diſcover which of theſe reſpectable qualities ſhone moſt conſpicuouſly in his character. Before this worthy author's time, although, as we have ſeen, ſeveral laudable attempts were made to reduce the ſubjects of natural hiſtory to a kind of methodical arrangement, none of their authors ſeem to have had ſuch comprehenſive views of nature as to enable them to form a ſyſtem founded upon ſolid principles. But as the character of Mr Ray and of his writings are ſo univerſally known and admired, it would be ſuperfluous to ſay any more on that ſubject.

We therefore proceed to give a ſhort view of the author's methodical diſtribution of animals.

Mr Ray, in the year 1693, publiſhed his Synopſis of Quadrupeds and Serpents. His Hiſtory of Inſects was publiſhed in the year 1710, by order of the Royal Society; and his Synopſis of Birds and Fiſhes in the 1713, under the inſpection of Mr Derham; both theſe laſt were printed ſeveral years after the author's death.

In the ſynopſis of quadrupeds, Mr Ray lays down a general diviſion of the animal kingdom, which he comprehends under two great claſſes, viz. 1. The ſanguineous. 2. The exangueous.

The ſanguineous are ſubdivided into thoſe which reſpire by lungs, and whoſe hearts are furniſhed with two ventricles; and thoſe which reſpire by gills, as all the ſanguineous fiſhes, except the cetaceous tribe. But ſome animals have two lungs, as the cetaceous fiſhes, viviparous quadrupeds, and birds; and others only one, as the oviparous quadrupeds and ſerpents. Animals with two lungs are either viviparous or oviparous. The viviparous are ſubdivided into aquatic, as the cetaceous fiſhes; and terreſtrial, as the quadrupeds covered with hair. The oviparous animals with two lungs comprehend the whole claſs of birds.

The exangueous are divided into the larger, which are either ſoft, as the cuttle-fiſh, &c. Cruſtaceous, as the lobſter, &c. or teſtaceous, which again are either furniſhed with one valve, two valves, or one turbinated; and the leſſer, which include inſects properly ſo called.

QUADRUPEDS.

QUADRUPEDS.

Mr Ray divides viviparous quadrupeds into two orders, viz. I. Such as are hoofed. II. Such as have nails or claws.

The firſt order is ſubdivided into, 1. Whole-hoofed, as the horſe, aſs, and zebra. 2. Cloven-hoofed, which either ruminate, as the ſheep-kind, &c. or do not ruminate, as the hog-kind. The ruminating animals are again diſtinguiſhed into two kinds, viz. Such as do not caſt their horns, as ſheep, goats, &c. and ſuch as do caſt their horns, as the deer-kind. 3. Four-hoofed, as the rhinoceros, hippopotamus, &c.

The ſecond order, comprehending animals with nails or claws, are diſtinguiſhed, by the number of toes and nails or diviſions in their feet, into bifid, or thoſe furniſhed only with two toes or nails, as the camel-kind; and multifid, or ſuch as have more than two: The laſt are ſubdivided into ſuch as have undivided toes, or toes adhering to one another, and covered with a common ſkin, their extremities only ſtanding out, and fortified with obtuſe nails, as the elephant; and ſuch as have divided toes: Quadrupeds with divided toes have either broad nails like thoſe of men, as the ape-kind; or narrower claws, with cutting teeth in each jaw: Theſe are again diſtinguiſhed into ſuch as have many cutting teeth; and ſuch as have only two. Thoſe with many cutting teeth are all carnivorous and rapacious, or at leaſt feed upon inſects, or promiſcuouſly on inſects and vegetables, and are divided into the greater kind, furniſhed with a ſnout, which is either roundiſh, as in the cat-kind, or longer, as in the dog-kind; and the leſſer kind, with long ſlender bodies and

ſhort

ſhort legs, as the weaſel, otter, &c. Thoſe with two cutting teeth, are all herbivorous, as the hare-kind. The hedge-hog, armadillo, mole, ſhrew-mouſe, ant-eater, bat, and ſloth are added here as anomalous.

The oviparous quadrupeds reſpire by lungs, and have but one ventricle in their hearts. Under this diviſion are comprehended frogs, tortoiſes, lizards, and ſerpents. The ſerpents are diſtinguiſhed into thoſe which have long, crooked, ſharp, exerted teeth, by which they bite and infuſe a venom into the wound, as the viper, the rattleſnake, &c.; and thoſe which have no ſuch teeth, and are not venomous, as the common ſnake, &c.

Birds and Fishes.

In theſe two claſſes, the diviſions and principles of arrangement are ſo nearly the ſame with thoſe of Mr Willoughby, that it would be ſuperfluous to repeat them.

Insects.

Mr Ray, from the transformation of many inſects, comprehends the whole under the two following diviſions: I. Inſects which undergo no change from their original ſtate. II. Inſects which ſuffer a transformation.

The firſt diviſion is diſtinguiſhed into thoſe which have no feet; and thoſe which have feet. Inſects without feet are again either terreſtrial or aquatic. The land-inſects either live in the ground, as the earth-worms, or in the inteſtines of men and other animals, as the

the teretes, tænia, and aſcarides. The aquatic inſects are divided into the greater, as leeches, &c.; and the leſſer, as the ſmall worms called flukes, &c. Inſects with feet are diſtinguiſhed into ſuch as have 6 feet; ſuch as have 8 feet; ſuch as have 14 feet, as the wood-lice, &c.; and ſuch as have many feet. The 6-footed inſects are divided into terreſtrial and aquatic. The terreſtrial are either larger, as meal-worms, &c.; or leſſer, as the bug, the common louſe, &c. The 8-footed inſects are either furniſhed with a tail, as the ſcorpion, or have no tail, as ſpiders, mites, &c. The many-footed inſects are likewiſe divided into terreſtrial, and cylindrical, as the julus; terreſtrial plain or compreſſed, as the ſcolopendræ; and aquatic, as the lugs or ſea-bait, &c.

In the ſecond diviſion, comprehending inſects which ſuffer a transformation, Mr Ray follows Swammerdam's method, who diſtinguiſhes them by the circumſtances attending their different changes. The firſt ſpecies of transformation is performed ſo ſuddenly, that hardly any time intervenes between the two different ſtates or forms of the animals, as in the dragon-flies, graſshoppers, crickets, &c. The ſecond ſpecies of transformation comprehends thoſe inſects which undergo a double metamorphoſis, being firſt changed to a chryſalis, remaining for ſome time without motion and without taking any nouriſhment, and then to a fly. Theſe are diſtinguiſhed, by their wings, into coleoptera, or thoſe which have cruſtaceous ſheaths covering their wings, as the beetles; and anelytra, or thoſe which have no ſuch covering to their wings; which laſt are ſubdivided into ſuch as have farinaceous wings, as the butterflies; ſuch as have four membranaceous wings, as bees, &c.; and ſuch as have two membranaceous wings, as the fleſh-fly, &c.

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The third ſpecies of transformation is ſimply from a caterpillar to a fly, the caterpillar lying quiet for ſome time before its change, and comprehends ſeveral kinds of muſcæ.

N. B. This hiſtory and diſtribution of inſects was left in a crude ſtate, and never finiſhed for the preſs by the author.

The different ſynopſes of animals written by Mr Ray are not to be conſidered as mere technical diſtributions. His arrangements indeed are founded on good principles; and his deſcriptions are ſhort, but clear and comprehenſive. However, beſides arrangement and deſcription, the author, particularly in his ſynopſis of quadrupeds, frequently ſubjoins a conciſe hiſtory of manners and diſpoſitions. In the arrangement and deſcriptions, extenſive erudition and a ſound underſtanding, joined to a habit of accurate obſervation, are eminently conſpicuous. In the hiſtory of individuals, Mr Ray diſcovers an elegancy of taſte, a ſcrupulous regard to truth, a manly philoſophical firmneſs, and, above all, a warm attachment to virtue and the genuine happineſs of mankind.

§ 14. Of ARTEDI.

Petrus Artedi, a native of Sweden, and fellow ſtudent of Linnæus, with whom he lived in habits of the moſt intimate friendſhip, died at an early period of life, having fallen into a canal near Amſterdam, where he unfortunately periſhed in the 30th year of his age. Natural hiſtory was the ſubject in which he chiefly delighted; but he applied himſelf particularly to ichthyology, a branch of that ſcience which had been leaſt cultivated. After examining with the minuteſt

minute attention all the fiſhes produced in his own country, Artedi travelled into Holland, Britain, &c. with a view to improve himſelf ſtill further in his favourite ſtudy. Not ſatisfied with the arrangement of Willoughby and Ray, he compoſed a ſyſtem founded upon different principles. After the death of Artedi, Linnæus procured his manuſcripts, and publiſhed his method and deſcription of fiſhes at Leyden in the year 1738.

Artedi diſtributes fiſhes into thoſe which have perpendicular tails, with rays in their fins; and thoſe which have horizontal tails. Thoſe with perpendicular tails are divided into bony fiſhes, and cartilaginous fiſhes. The bony fiſhes conſtitute three orders: 1. Malacopterygii, or fiſhes with ſmall bones in their gills, and ſoft rays in their fins, as the carp, the bream, the herring, &c. 2. Acanthopterygii, or fiſhes with ſmall bones in their gills, and pungent or prickly rays in their fins, as the mullet, the mackerel, the ſtickleback, &c. 3. Branchioſtegi, or fiſhes which have no bones in their gills, as the ſun-fiſh, the frog-fiſh, &c. There is but one order of the cartilaginous fiſhes, viz. the chondropterygii, or fiſhes the rays of whoſe fins are hardly diſtinguiſhable from the membrane; they have cartilages in place of bones, and their mouths are generally ſituated in the under part of their bodies, as the lamprey, the balance-fiſh, the ſkate, the ſhark, &c. The fiſhes with horizontal tails likewiſe conſtitute but one order, viz. the plagiuri, which comprehends the whale-kind.

The deſcriptions of Artedi are fuller and more ſcientific than thoſe of moſt ichthyologiſts. He has likewiſe added a multitude of ſynonimes.

§ 15. Of KLEIN.

Mr KLEIN, an ingenious methodiſt, publiſhed a new arrangement of fiſhes in the year 1740. Since that time, he has favoured the world with a methodical diſtribution of quadrupeds, birds, teſtaceous animals, and reptiles, &c.

QUADRUPEDS.

Theſe Mr Klein divides into the three following orders. I. Hoofed quadrupeds. II. Toed and hairy quadrupeds. III. Toed quadrupeds without hair.

The firſt order he ſubdivides into five families. 1. Quadrupeds with one hoof, as the horſe and aſs. 2. With double or cloven hoofs, as the ox-kind, the ſheep-kind, &c. 3. With three hoofs, as the rhinoceros. 4. With four hoofs, as the hippopotamus. 5. With five hoofs, as the elephant.

The ſecond order comprehends viviparous quadrupeds furniſhed with toes, and covered more or leſs with hair. Theſe are likewiſe ſubdivided into five families. 1. Quadrupeds with two toes, as the camel and ſilenus. 2. With three toes, at leaſt uniformly in the fore-feet, as the ſloth and ant-eater. 3. With four, uniformly in the fore-feet, as the armadillo, &c. 4. With five toes, uniformly in the fore-feet, as the hare, the ſquirrel, &c. 5. With anomalous feet, as the otter, caſtor, walrus, phoca, and manati.

The third order comprehends, 1. Quadrupeds covered with a ſhell.

ſhell, as the tortoiſes. 2. Quadrupeds covered with a hard cataphractous ſubſtance, as the crocodile. 3. Naked quadrupeds, as lizards, frogs, &c.

Birds.

Mr Klein divides birds into eight families. His principle of arrangement is ſolely derived from the number, ſituation, and ſtructure of the toes.

Order I. Birds with two toes, both placed forward, as in the oſtrich.

II. — With three unconnected toes, all placed forward, as the caſſiowary, the buſtard, the green plover, &c.

III. — With four toes, two before and two behind, as the parrots, woodpecker, cuckoo, &c.

IV. — With four toes, three before and one behind, as the eagle, vulture, hawk, owl, crow, pie, bird of paradiſe, lark, nightingale; the wren, the ſwallow, the linnet, the woodcock, the humming birds, the curlew, the gallinaceous tribe, the columbine tribe, the crane, &c.—A ſtrange, unnatural combination!

V. — With four toes, three before, connected by a membrane, the back-toe looſe, as ſwans, geeſe, gulls, divers, &c.

VI. — With four toes, all connected by a membrane, as the ſolen-gooſe, cormorant, &c.

VII. — With three toes placed forward, all connected by a membrane, as the guillemot, penguin, albatroſs, &c.

VIII. — With four toes, having lobes, or looſe membranes, adhering to the three fore-toes, and the back one generally without any lobe, as the creſted loon, the coot, &c.

Fishes.

Theſe are divided into three orders. The firſt comprehends ſuch as reſpire by lungs, as the cetaceous tribe. The ſecond order contains thoſe fiſhes which reſpire by occult gills, or gills which do not appear externally: Fiſhes of this kind are furniſhed with ſpiracles or ſmall holes, in ſome placed behind, in others laterally, and in others, in the thorax. The ſubdiviſions of this order are regulated by the number of theſe ſpiracles. The third order includes ſuch fiſhes as have viſible gills. Any thing remarkable in the head, mouth, and form of the body is employed for the ſubdiviſions of this order.

Testacea, or Shell Animals.

Mr Klein makes two general diviſions of ſhell-animals, the firſt of which he calls cochlides, and the ſecond conchæ. The cochlides have teſtaceous ſpiral canals, ſmall and cloſe at one end, the ſpires gradually enlarging in a uniform proportion, till they terminate in the mouth of the ſhell. The conchæ are concave ſcouped ſhells, ſuch as limpets, muſcles, &c.

The cochlides are divided into ſimple and compound. The ſimple cochlides are ſpiral canals formed by a ſingle revolution of the

ſhell, and are diſtributed into eight claſſes, viz. 1. Plain, as the nautilus, cornu ammonis, &c. 2. Convex, as the nerita, luna, &c. 3. Vaulted, as the pentadactylus, &c. 4. Elliptical, as the ear-ſhell, &c. 5. Conical, as the ſtrombus, &c. 6. Cochlea, or ſimple cochlides ſimilar to obtuſe and ſomewhat inclined cones, as the fornax, ſaccus, &c. 7. Buccinum, as the whelks and trumpet-ſhells. 8. Turbo, wreath or whirl-ſhells.—The compound cochlides are ſuch ſhells as have a double circumvolution, ſo that they appear to be compoſed of two. Theſe are divided into five claſſes. 1. Roſtrata, or beaked ſhells, as the gladius, &c. 2. Shells with a long volute, as the turricula, &c. 3. Shells with an oval volute, as the bulla, cithara, &c. 4 Alata, or winged ſhells, as the harpago, &c. 5. Murex, caltrop or rock-ſhells, as the triangular whelk, &c.

The conchæ are divided into ſix claſſes. 1. Monoconcha, or ſingle-valved ſhells, as the limpets. 2. Diconcha, or two-valved ſhells, are ſubdivided into equal and connivext, as oyſters, muſcles, &c.; equal and interrupted, as the chama, &c.; and inequal, as the terebratula, &c. 3. Polyconcha, or ſhells with more valves than two, as the anatifera or barnacle. 4. Niduli teſtacei, acorn-ſhells, or collections of ſhells in the form of little roundiſh neſts, either ſolitary or adhering to other ſea-bodies, as the balanus, &c. 5. Echini marini, or ſea-urchins. 6. Tubuli marini, or ſea-tubes.

Reptiles.

Theſe are divided into two orders. I. Anguis, comprehending the ſerpent tribe. II. Worms.

The firſt order is ſubdivided into, 1. Serpents with diſtinct heads and

and tapering tails: Theſe are again diſtinguiſhed into ſuch as have canine teeth, as the vipers; ſuch as have pectinated teeth, like the pike-fiſh, as the ammodites, &c.; ſuch as have teeth reſembling needles, as the coluber dipſas, aeſculapius, &c.; and ſuch as have no teeth, as the ſerpens ceraſtes of Seba, &c. 2. Serpents with undiſtinct heads, and truncated tails, as the amphiſbæna and ſcytale.

The ſecond order, viz. worms, are all included under three genera; 1. Lumbricus, comprehending earth-worms, water-worms, and ſuch as inhabit the bodies of animals. 2. Tænia, or the tape-worm. 3. Hirudo, or leech.

Mr Klein's method is ingenious; but his principles of arrangement are ſo limited, that very incongruous animals are often linked together.

§ 16. Of LINNAEUS.

This learned and indefatigable naturaliſt appeared in the character of a ſyſtematic writer as early as the year 1735. After that period, he gradually improved and enriched his *Syſtema Naturae* till the laſt edition of that valuable work, which he publiſhed at Holme in the year 1766 7. Since his death, however, Profeſſor Gmelin of Goettingen, with much induſtry and knowledge, publiſhed an improved edition, being the 13th, at Leipſic, in the year 1788. As twenty years had elapſed ſince the 12th edition was preſented to the public by the celebrated Linnaeus, many diſcoveries in the animal kingdom had been made, in different quarters of the globe, by laborious and ingenious travellers. Theſe Profeſſor Gmelin has not only collected and deſcribed, but has incorporared them

into his edition of the Syſtema Naturae of Linnaeus, by which, without materially altering the plan and arrangement, he has highly enriched and enhanced the value and utility of the work.

Linnaeus* diſtributes the animal kingdom into ſix Claſſes: I. Mammalia, or animals that ſuckle their young, which includes man, the quadrupeds, and the whale-kind. II. Birds III. Amphibious animals. IV. Fiſhes. V. Inſects. VI. Worms.

Class I. Mammalia.

I. The mammalia are divided into ſeven orders. The orders of the mammalia are chiefly regulated by the number and ſituation of the teeth. 1. *Primates*, or animals with one canine and four cutting teeth. This order includes man, and all the ape, monkey, and bat-kinds, 2. *Bruta*, or animals which have no cutting teeth in either jaw, as the elephant, ant-eater, &c. 3. *Ferae*, or animals whoſe cutting teeth vary from ten to two. This order comprehends moſt of the rapacious quadrupeds, as the dog, cat, and bear-kinds, &c. 4. *Glires*, or animals which have only two cutting and no dog-teeth, as the mouſe, ſquirrel, hare, &c. 5. *Pecora*, or animals which are hoofed, and have no cutting teeth in the upper jaw. This order includes the camel, the deer, the ſheep, and the ox-kinds, &c. 6. *Belluae*, or quadrupeds with cutting teeth in each jaw; as the horſe, the ſow, &c. 7. *Cetæ*, or animals, whoſe teeth vary greatly in different genera. This order comprehends all the cetaceous, or whale tribes, which Linnaeus, from certain ſimilarities of ſtructure, has arranged under the claſs of quadrupeds.

Class

Class II. Birds.

This claſs Linnaeus divides into ſix orders. The diſtinctive characters of the orders are chiefly derived from the bills and the feet. 1. *Accipitres*, (eagle or hawk kind) birds with hooked bills, and ſhort, robuſt limbs. Under this order are comprehended vultures, falcons, owls, &c. They build their neſts in rocks, and elevated ſituations. II. *Picae*, (pies) or birds with bills ſhaped like a knife and convex on the backs. The limbs are fitted for walking, being ſhort and pretty ſtrong. They build their neſts in trees. III. *Anſeres* (ducks) have ſmooth bills, covered with a ſkin, and expanded at their termination. Their toes are connected by a membrane, which enables them to ſwim. They generally build their neſts on the ground. IV. *Grallae*, or birds with obtuſe and nearly cylindrical bills. The limbs are fitted for walking, and the thighs are partly deſtitute of feathers. They generally build their neſts on the ground. To this order belong cranes, ſnipes, &c. V. *Gallinae*, or birds with convex bills. The toes are divided, but ſtrongly connected above by articulations, and fitted for walking or running. This order comprehends the pheaſant, grous, peacock, &c. kinds. VI. *Paſſeres*, or birds with conical ſharp-pointed bills. To this order belong the pigeon, the ſwallow, the thruſh, &c. kinds.

Class III. Amphibious Animals.

This claſs comprehends all thoſe animals which, from certain peculiarities in the ſtructure of their lungs, are enabled to live either in air or in water. Linnaeus divides this claſs into two orders. 1.

Reptilia

Reptilia pedata, or reptiles furniſhed with feet, including turtles, lizards, frogs, &c. II. *Serpentes apodes*, or reptiles without feet. This order comprehends all the ſerpent and ſnake kinds.

Class IV. Fishes.

In the claſs of fiſhes, which Linnaeus divides into ſix orders, the principal marks of diſtinction are derived from peculiar circumſtances attending the gills and fins. The firſt four orders comprehend all thoſe fiſhes which have oſſeous gills; and this fact muſt be underſtood as applicable to the other characters the author employs to diſtinguiſh theſe orders.

Order I. *Apodes*, or fiſhes which have no ventral, or belly fins. This order comprehends all the eel tribes, whether they inhabit ſeas, lakes, or rivers. 2. *Jugulares*, or fiſhes with the ventral placed before the pectoral fins, as in the haddock, whiting, ling, &c. kinds. 3. *Thoracici*, or fiſhes with the ventral ſituated near the pectoral fins, as in the feather-laſher, holibut, plaiſe, &c. 4. *Abdominales*, or fiſhes with the ventral ſituated behind the pectoral fins, as the pike, the mullet, the herring, &c. 5. *Branchioſtegi*, or fiſhes whoſe gills are deſtitute of oſſeous matter, as the ſun-fiſh, pike-fiſh, frog-fiſh, &c. 6. *Chondropterygii*, or fiſhes with cartilaginous gills, as the ſturgeon, dog-fiſh, balance-fiſh, &c.

Class V. Insects.

Under this claſs Linnaeus comprehends all animals which are

provided with *antennae*, or feelers, ſituated in the fore-part of their heads. The orders of inſects, which are ſeven in number, are chiefly derived from their wings. They are diſtinguiſhed into thoſe which have four, thoſe which have two, and thoſe which are deſtitute of wings. To the firſt order Linnaeus gives the appellation of *coleoptera*, or four winged inſects whoſe upper pair conſiſt of a cruſtaceous or horny ſubſtance, and join in a ſuture or ridge. Theſe cover and defend the under pair, which are of a ſoft and flexible texture. This order includes the whole *ſcarabaei* or beetle tribe. 2. *Hemiptera*, inſects which have likewiſe four wings; but the upper pair, inſtead of being hard and horny, have a reſemblance to fine vellum, as in *graſshoppers*, *locuſts*, *crickets*, &c. 3. *Lepidoptera*, or inſects whoſe wings are covered with imbricated ſcales. This order comprehends all the *butterfly* and *moth* tribes. 4. *Neuroptera*, or inſects with four membranaceous wings, ſo interſperſed with delicate veins, that they reſemble beautiful net-work, as the *dragon-fly*, the *ſpring-fly*, &c. 5. *Hymenoptera*, or inſects with four membranaceous and naked wings, as the *waſp*, the *bee*, &c. In ſome of the genera, however, arranged under this order, the neuters, and, in others, the males, or even the females, have no wings. Their tails, except in the male ſex, are armed with a ſting. 6. *Diptera*, or two winged inſects. Beſide wings, the ſpecies of this order are furniſhed with what is called a *halter*, or a *poiſer*, which is ſituated under each wing, and terminates in a *capitulum*, or knob. Under this diviſion are comprehended the *gad-fly*, the *gnat*, &c. 7. *Aptera*, or inſects which are deſtitute of wings, as the *louſe*, the *flea*, the *ſcorpion*, &c. VI. *Vermes*, or *worms*. This order includes not only all the inſects commonly called *worms*, but all the teſtaceous animals, and the zoophytes, or plant-animals.

§ 17.

§ 17. Of BUFFON.

I. Of Quadrupeds.

The firſt volume of the *Hiſtoire Naturelle, generale et particuliere, avec la Deſcription du Cabinet du Roi*, was publiſhed at Paris in the year 1749. The hiſtorical part is the compoſition of M. de Buffon; the deſcriptive and anatomical parts are written by M. Daubenton. To avoid, however, the frequent repetition of two names, we ſhall uſe that of Buffon only.

We found not much difficulty in giving ſhort views of the ing of thoſe naturaliſts who preceded the celebrated author now before us. If we may judge of the character of a man from his literary performances, M. de Buffon, when tried by this teſt, appears in ſuch a variety of agreeable and brilliant aſpects, that, unleſs he be ſurveyed with uncommon coolneſs and attention, the imagination of the reader will be hurried away by an almoſt irreſiſtible torrent of eloquence. Conſcious of the ſtrength of his own genius, he diſdains the fetters and dull formalities of methodical diſtribution, which men of leſs fancy, but perhaps of ſuperior judgement, have uniformly regarded as an eſſential article in the communication of ſcience. To give ſome idea of our author's fertility and copiouſneſs, it ſhall only be mentioned, that his hiſtory of quadrupeds alone conſiſts of 15 large volumes in 4to. But when the multiplicity of ſubjects which he embraces are attended to; when we find him employing a whole volume on the method of ſtudying natural hiſtory, and on the theory of the earth; another in order to ſupport a peculiar theory of ge-

neration; a third in deſcribing the articles contained in the cabinet of the king, and the various races of men; a long diſcourſe on the nature of animals, another reprobating methodical arrangements; and, above all, when it is conſidered that the author was a moſt eloquent and ingenious Frenchman, we have reaſon to be ſurpriſed that he ſhould have begun the hiſtory of his firſt quadruped ſo early as in the middle of the fourth volume.

The deſign of the preſent chapter obliges us to confine our obſervations chiefly to that part of M. de Buffon's work which contains the principles upon which he thinks natural hiſtory ought to be taught and ſtudied.

M. de Buffon aſſerts *, that all methodical diſtributions are purely arbitrary; and, therefore, that every man is at liberty to chuſe that which is moſt convenient, or moſt generally received. Let us ſuppoſe a man, he remarks, totally void of ideas, and conſequently unbiaſſed by prejudices of every kind. Place this man in a country ſtored with quadrupeds, birds, fiſhes, and plants. At firſt he will not be able to diſtinguiſh one object from another; but, allow his ideas to be gradually unfolded by reiterated impreſſions from the ſame objects, and he will ſoon be in a capacity to diſtinguiſh animated from inanimated matter; in a ſhort time afterward, he will likewiſe perceive the difference between animal and vegetable ſubſtances, and thus naturally arrive at the firſt great diviſion of natural bodies into Animal, Vegetable, and Mineral. As by this time he will have acquired diſtinct ideas of thoſe grand objects, Earth, Air, and Water, he will ſoon form a particular notion of ſuch animals as inhabit theſe different elements, and, of courſe, will eaſily make a ſecond

* Hiſt. Nat. tom. 1. p. 31. et ſeq. 4to. a Paris, 1749-1772.

cond diviſion of animals into quadrupeds, birds, fiſhes, &c. Let us next ſuppoſe, continues our author, that this man has acquired an equal portion of knowledge and experience with ourſelves, and he will form a judgment of the objects of natural hiſtory ſolely by the relations which they reſpectively have to himſelf. Thoſe which are moſt neceſſary or uſeful to him will occupy the firſt rank; for example, in arranging quadrupeds, he will give the preference to the horſe, the dog, the ox, &c. Thoſe which inhabit the ſame country, as the ſtag, the hare, and, in general, all the wild or undomeſticated animals, will be the next in order: Laſtly, his curioſity will prompt him to inquire into the nature of ſuch animals as inhabit foreign climates, and will proceed in the ſame manner with regard to birds, fiſhes, inſects, teſtaceous animals, plants, minerals, and every other production of nature. This our ingenious author ſuppoſes to be the moſt natural order, and, accordingly, obſerves it in his hiſtory of animals. We ſhall mention his arrangement of quadrupeds in a more ſimple form from the 168th page of the 4th volume—I. Domeſtic quadrupeds. II. Wild quadrupeds. III. Foreign quadrupeds.

We ſhould be apt to imagine that M. de Buffon, when he laid down this principle of arranging animals, had not only been miſtaken in his philoſophy, but had forgotten the ſubject upon which he was writing: That young and uninformed minds gradually acquire additions to their ſtock of ideas from the objects which ſurround them and ſolicit their attention, or, in other words, that objects, in proportion to the novelty of their appearance, and the utility they promiſe to afford us, make the deepeſt impreſſions on our minds, and, of courſe, their properties are not only firſt attended to, but more minutely inveſtigated than thoſe which are either more

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diſtant or leſs intereſting, is a fact that cannot admit of a doubt. But the obſervation, however juſt, is here miſapplied. If we did not know that M. de Buffon was endeavouring to aſcertain the principles of arranging the animal world, we ſhould be led to think that he was tracing the manner in which ideas were acquired, and the proportional force of the impreſſions we receive from external objects. But, who would not be aſtoniſhed to ſee this fact applied to a ſcience of an oppoſite nature, and conſtructed upon very different principles? There are many other relations by which mankind are connected to the animate and inanimate productions of Nature than what ariſe from utility and local ſituation. Beſides, the principle is extremely limited and defective. The connection of mankind with natural objects is, in many caſes, entirely caſual, depending on the climate, the ſtate of the ſociety in which he lives, with regard to culture, inſtitutions, prejudices, and a thouſand fortuitous circumſtances. Again, are there no natural relations between the various tribes of brute animals? Are they all related to man, without any connection among themſelves? Have they no common properties in the form of their bodies, their movements, or in the internal powers by which their actions are governed? M. de Buffon will not go ſo far; and yet he makes very near approaches. 'An aſs,' ſays he, 'is an aſs, and a cat, a cat *.' 'Nature,' he remarks, in another place †, 'proceeds from one ſpecies to another by ſuch imperceptible degrees, that we are often tempted to link many of them together as belonging to the ſame family. We ought not, however, 'to forget, that theſe families, or genera, are created by ourſelves, 'in order to aſſiſt the underſtanding; and that, if we cannot comprehend the real connections of natural objects, it is our own fault, 'and

* L'Hiſt. Nat. vol. I. p. 40.

† Ibid. vol. 4. p. 384. et ſeq.

'and no defect in Nature, who knows nothing of thoſe pretended 'families, and who, in fact, has only made individuals. An indi-'vidual is a detached being, which has nothing in common with 'other beings, except that it reſembles, or rather differs from them. 'All the ſimilar individuals which exiſt upon this earth are conſi-'dered as compoſing the ſpecies of theſe individuals. It is not, 'however, the collective number of individuals, but their conſtant 'ſucceſſion and renovation, which conſtitute their ſpecies.'

In this and many other paſſages, M. de Buffon endeavours to perſuade us, that no ſuch thing as genus exiſts in Nature, but that all her productions are unconnected ſpecies, or mere collections of ſucceſſive individuals. He allows, indeed, that the connections or differences of many ſpecies are often ſo imperceptible, that we are in danger of concluding them to be of the ſame family. This admiſſion is ſufficient. It relinquiſhes the very point for which he ſo ſtrenuouſly contends; a circumſtance by no means uncommon in the works of this moſt ingenious, but verſatile author. If Nature has made the connections of different ſpecies ſo ſtrong that it requires conſiderable attention to diſcover their differences, it cannot be ſuppoſed that ſhe had no deſign in this plan of operation. Her benevolent intentions, on the contrary, are numerous. The intimate connections and nice diſtinctions of natural objects give riſe to an immenſe variety of beings, which could not poſſibly exiſt, if the gradations were larger and the diſtinctions more apparent. They aſſiſt the mind in forming general and comprehenſive views of the univerſe. They are the foundation upon which every art and ſcience is conſtructed, as, without their aſſiſtance, no man could form an abſtract or general idea; it is needleſs to ſay more. We ſhould, indeed, have conſidered it ſuperfluous to have reaſoned

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How eaſily do mankind deceive themſelves, and how naturally does this deceit lead them into contradiction and abſurdity? M. de Buffon, in the 26th page of his firſt volume, juſtly reprehends Aldrovandus for intolerable prolixity; and tells us, that his hiſtory might be reduced to one-ſixth of its preſent ſize, if the immenſe load of uſeleſs and foreign matters were removed. But, the ingenious Frenchman had not the moſt diſtant idea, when he made this pertinent remark, that he was writing a ſevere ſatire on his own book, which had, by that time, ſwelled to eighteen large volumes in quarto, beſides his hiſtory of birds, which conſiſts of nine volumes more; and, if he had fortunately lived to complete his plan, the work would have been a much more ponderous load than that of the voluminous German.

We ſhall diſmiſs this learned and laborious compoſition, with a few obſervations on the deſcriptive part; for which we are indebted to the ſkill and indefatigable induſtry of M. Daubenton. The deſcriptions are generally taken from the life, and with ſuch aſtoniſhing minuteneſs, that it is not without reluctance we are obliged to think a great part of this labour uſeleſs. Our author's plan of deſcribing is ſo extenſive, that every minute part of the body, whether external or internal, is not only fully deſcribed, but its length, breadth, and thickneſs, are accurately meaſured. He takes an individual of a ſpecies, and, after a general deſcription, he proceeds to a menſuration of the particular parts, as the length of the head; the contour of the mouth; the diſtance between the angles of the under jaw; the diſtance between the noſtrils; the length of the eye from one angle to the other; the diſtance between the two pupils; the diſtance between the ears, &c. He is equally minute in the di-

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II. Of Birds.

Every admirer of the productions of nature muſt congratulate himſelf that the life of the great, the ingenious, and the laborious M. de Buffon was continued till he had been enabled to complete his Natural Hiſtory of Quadrupeds, as well as that of the feathered tribes.

In this laſt department of Natural Hiſtory, he had a thouſand difficulties to encounter; particularly in deſcribing and diſtinguiſhing the ſmaller ſpecies of birds, who not unfrequently intermix, and produce numerous fertile varieties. For this reaſon, in his plan of the work, he remarks that, inſtead of deſcribing birds by diſtinct and ſeparate ſpecies, he has united ſeveral of them under the ſame ſpecies. By this method, he has conſiderably abridged the Natural Hiſtory of Birds; which, upon a more extenſive ſcale, would have been too

with a philoſopher who denies the exiſtence of genus in the univerſe, had his knowledge and taſte been as capricious as his ſcientific principles.

For what purpoſe, then, it may be aſked, has M. de Buffon given himſelf the trouble of writing, and his readers the labour of peruſing ſo much argumentation upon a ſubject ſo obvious? To ridicule all preceding and cotemporary writers who have obſerved method in their works, and perſuade mankind that Nature prefers confuſion to order! M. de Buffon, however, is ſo very unſtable, that he ſeldom long preſerves his poiſe. In the paſſage formerly quoted, he denies the exiſtence of genera. But we muſt ſuppoſe him to have entirely overlooked what he had ſaid in the 140th page of the ſame volume. Let us attend to his ſentiments at that time. 'We have already,' ſays he, 'many connected facts and obſervations with regard to the 'different ſpecies of animals, which are employed as diſtinguiſhing 'characters in the various methodical diſtributions. In theſe me-'thods we find an uniform deſcription of the ſame parts in each dif-'ferent animal. This is ſo conformable to our plan, that we ſhall 'have recourſe to thoſe deſcriptions in treating of ſuch foreign ani-'mals as we have never ſeen. There is ſtill another advantage to 'be derived from thoſe methods: They ſupply us with general 'concluſions from a great number of particular obſervations. The 'reſemblance of particular parts in different ſpecies of animals forms '*generic characters*. The reſemblances which take place between 'animals belonging to different *genera* form ſtill more extenſive cha-'racters, by which orders and claſſes are determined.' Thus, the 'characters of the genera, orders, and claſſes, are ſo many general 'conſequences derived from particular obſervations, and, of courſe, 'are neceſſary facts in the hiſtory of animals.'

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It may be farther remarked, that M. de Buffon's method of claſſing animals is founded entirely upon a confined and local idea. Domeſtic, wild, and foreign animals, with a few exceptions, vary according to the climate and ſtate of the country in which a man lives. The rein-deer is a domeſtic animal in Lapland, and the ichneumon is a domeſtic in Egypt; but both are foreign animals in France. The guinea-pig is naturally a foreigner in Europe; but it is now a domeſtic in France and in ſeveral other European countries. Many examples might be added to ſhew the abſurdity of this method of arranging natural hiſtory; but, as one grand and uniform example, and which, indeed, includes all other examples, we ſhall refer the reader to the *Hiſtoire Naturelle et particuliere* of M. de Buffon, where he will find animals ſucceſſively deſcribed in the greateſt confuſion which the moſt capricious fancy can imagine. But, to give ſome idea of the confuſion reſulting from this order, the ingenious Mr Pennant ſeriouſly tells us, in the Preface to his excellent Synopſis of Quadrupeds, that the book was originally deſigned for private amuſement, and as an index for the more eaſily finding any particular animal deſcribed in the voluminous hiſtory of quadrupeds by the celebrated M. de Buffon.

But it is time to take a more agreeable view of this great and admirable writer. His hiſtory of animals is compoſed in ſuch a lively, entertaining, and inſtructive manner, that it muſt be highly reliſhed by every reader of taſte. His facts are numerous, his anecdotes are pleaſant, his characters are ſtrongly marked. Some people think his writings diffuſe; but it is univerſally agreed, that this diffuſion is ſo natural, and ſo bewitching, that the diſcovery is never made till the reader has peruſed the whole ſubject of which the author is treating.

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voluminous and uninteresting. He, therefore, confines his descriptions to domestic birds, and to the larger or more remarkable species. All the other birds, and particularly the smaller kinds, he unites with their kindred species, and groupes them together, as being nearly of the same natural dispositions, and as belonging to the same family. The number of relations, as well as that of varieties, is always greater in proportion to the smallness of the species. A sparrow or a linnet have, perhaps, twenty times more parents than those of the ostrich or the turkey. By the number of parents is to be understood the number of neighbouring species, which have such resemblances to each other as to make them be regarded as collateral branches of the same stem.—These neighbouring species have probably been separated from each other by the influence of climate, of food, and of the succession of time, which brings along with it all possible combinations, and unfolds all the causes of variegation, of perfection, of change, and of degeneration. Independently of natural and accidental varieties, which are much more numerous among birds than quadrupeds, another cause concurs in augmenting apparently the number of species Birds, in general, are more libidinous and more prolific than quadrupeds. They unite more frequently; and, when they cannot find females of their own species, they intermix more freely than quadrupeds with neighbouring species, and commonly produce fertile mules. This fact is established by the spontaneous commixture of the goldfinch and canary bird; for the mongrels they produce by their union are prolific, and, of course, form new intermediate species, which have more or less resemblance to the parents from whom they derive their origin. Now, whatever we procure by art may be, and actually is, performed by Nature. Fortuitous and voluntary commixtures often happen among animals of different species, and particularly among birds, who frequently, when

when their natural mates cannot be obtained, uſe the firſt bird, ſimilar in magnitude, that preſents itſelf. The neceſſity of union is ſo preſſing, that moſt birds, in this ſituation, are ſick, and not unfrequently die, when prevented from gratification. In court-yards, we often ſee a cock, when ſeparated from hens, lay hold of another cock, of a capon, of a guinea-hen, or of a duck. The pheaſant, in the ſame ſituation, makes uſe of a common hen. In volaries, the canary and goldfinch, the red and the common linnet, unite with ardor; and who knows what amours take place in the deep receſſes of the woods? who can recount the number of illegitimate embraces among different ſpecies? who can divide the baſtard branches from the genuine ſtems *?

Having given an account of M. de Buffon's Natural Hiſtory of Birds, nearly in his own words, it is almoſt ſuperfluous to remark, that, in this branch of the ſcience, he uniformly preſerves the character he had formerly acquired. His deſcriptions are accurate and clearly expreſſed; his hiſtorical narrations are not only elegant and entertaining, but diſcover great learning, candour, and deep reſearch.

§ 18. Of BRISSON.

M. Brisson, in the year 1756, publiſhed at Paris a Synopſis of Quadrupeds and Cetaceous Animals; and a new arrangement of Birds in 1760.

QUADRUPEDS.

* Buffon, Hiſt. Nat. des Oiſeaux, tom. 1. Plan de l'ouvrage, p. 20.

QUADRUPEDS.

Theſe M. Briſſon diſtributes into eighteen Orders.

Ord. I. Comprehends ſuch quadrupeds as have no teeth in either jaw; as the ant-eater and ſcaly lizard.

II. Quadrupeds furniſhed with grinders only, as the ſloth and armadillo.

III. ——With grinders and dog-teeth only, as the elephant, morſe, and manati.

IV. ——With ſix cutting teeth in the under jaw only, as the camel.

V. ——With eight cutting teeth in the under jaw, as the giraffe, the goat-kind, the ſheep-kind, &c.

VI. ——With cutting teeth in each jaw, and whole-hoofed, as the horſe and aſs.

VII. ——With cutting teeth in each jaw, and cloven-hoofed, as the hog-kind.

VIII. ——With cutting teeth in each jaw, and three-hoofed, as the rhinoceros.

IX. ——With two cutting teeth in each jaw, as the river-hog.

X. ——With ten cutting teeth in each jaw, as the tapiir, or elephant-hog.

XI. ——With cutting teeth in each jaw, and four-hoofed, as the hippopotamus.

XII. ——With toes and claws, and two cutting teeth in each jaw, as the porcupine, caſtor, hare, ſquirrel, mouſe, &c.

XIII. ——With toes and claws, and four cutting teeth in each jaw, as the ape-kind, &c.

XIV. — With toes and claws, four cutting teeth in the upper, and ſix in the under jaw, as the bats, &c.

XV. ——With toes and claws, ſix cutting teeth in the upper, and four in the under jaw, as the ſeal.

XVI. ——With toes and claws, and ſix cutting teeth in each jaw, as the hyæna, the dog-kind, weſels, badgers, bears, and cats.

XVII. ——With toes and claws, ſix cutting teeth in the upper, and eight in the under jaw, as the mole.

XVIII. ——With toes and claws, ten cutting teeth in the upper, and eight in the under jaw, as the opoſſum-kind.

Cetaceous Animals.

After the example of Linnæus, M. Briſſon places the whale-tribe next to the quadrupeds, and divides them into four orders.

Ord. I. Without teeth, as the Greenland whale, North-caper, the bunch-back whale, &c.

II. With teeth in the under jaw only, as the catodon or potwal-fiſh, the ſpermaceti-whale, &c.

III. With teeth in the upper jaw only, as the monoceros.

IV. With teeth in each jaw, as the dolphin, the porpeſſe, the grampus, &c.

Birds.

M. Brisson divides birds into twenty-ſix Orders.

Ord. I. Birds with four unconnected toes, three forward, one backward, having their legs covered with feathers nearly down to the talons, a ſtrait bill, the upper mandible a little thicker, and crooked toward the point, and the noſtrils half covered with a thick ſoft membrane, as in the pigeon-tribe.

II. The ſame characters, with a conical bill bent inward, as in the gallinaceous tribe.

III. ——With a ſhort hooked bill, comprehending eagles, hawks, &c.

IV. ——With a long conical bill, as in pies, &c.

V. ——With a ſtrait bill, and the edges of each ſide of the upper mandible emarginated, as in the butcher's bird, &c.

VI. ——With a ſtrait bill, and both mandibles entire, as in the beef-eater, &c.

VII. ——With a ſlender bill, a little bent arch-ways, as in the hoopoe, &c.

VIII. ——With a very ſmall bill, compreſſed at the baſe, crooked at the point, and the mouth, when open, larger than the head, as in the goat-ſucker, &c.

IX. ——With a ſhort conical bill, as in the ſparrow, &c.

X. ——With a bill ſhaped like an awl, as the lark, &c.

XI. ——With a bill ſhaped like a wedge, as the ſitta, &c.

XII. ——With a bill long and ſlender like a thread, as the honey-ſucker, certhia, &c.

XIII. Birds with four unconnected toes, two forward, two backward, as parrots, &c.

XIV. Birds with four toes without membranes, three forward, one backward, the middle toe firmly adhering to the outmoſt as far as the third joint, as the manakin, bee-eater, &c.

XV. Birds with unconnected toes, the inferior part of the limbs naked, the wings ſmall in proportion to the ſize of the body, and unfit for flying, as the oſtrich, caſſowary, &c.

XVI. Birds with three unconnected toes, all forward, the inferior part of the limbs naked, and the wings large and proper for flying, as the plover, &c.

XVII.

XVII. Birds with four unconnected toes, three forward, one backward, the inferior part of the limbs naked, and the wings fit for flying, as the jacanu, woodcock, heron, &c.

XVIII. Birds with four unconnected toes, three forward, one backward, all furniſhed with membranes through their whole extent; as the coot, gallinule, &c.

XIX. Birds with four toes, the three anterior of which are connected by a membrane extending about one half of their length, the poſterior toe looſe, and the legs placed far back, and nearly concealed by the abdomen, as the grebe, &c.

XX. Birds with three toes forward, wholly connected by a membrane, and no back-toe, with the legs ſituated as in Order 19. as the guillemot, penguin, &c.

XXI. Birds with four toes, the three anterior ones entirely connected by a membrane, and the back one looſe, with the legs ſituated as in Order 19. as the diver, &c.

XXII. Birds with three toes forward entirely connected by a membrane, and no back-toe; the legs placed near the middle of the body, and ſhorter than the body, as the albatroſs, &c.

XXIII. Birds with four toes, the three anterior entirely connected by a membrane, and the back one looſe; the legs placed near the middle of the body, and ſhorter than the body: and the bill having no teeth, as the petrel, gulls, &c.

XXIV. The ſame character with the former, only the bill is dentated, as the merganſer, duck, &c.

XXV. Birds with four toes, all entirely connected by a membrane, the limbs placed near the middle, and ſhorter than the body, as the cormorant, pelican, &c.

XXVI. Birds with four toes, the anterior three joined by a membrane,

brane, and the poſterior one looſe; the legs placed near the middle, and longer than the body, as the flamingo, avocette, &c.

M. Briſſon diſcovers himſelf to be an able naturaliſt. His deſcriptions are clear, conciſe, and pointed. His principles of arrangement are ingenious, but too confined to anſwer the purpoſes of a general ſyſtem of Nature.

§ 19. Of PENNANT.

For more than twenty years paſt, this gentleman has been occaſionally enriching the ſcience of Natural Hiſtory by uncommon induſtry, knowledge, and ingenuity. Beſides his other valuable works, he has favoured the world with new arrangements of quadrupeds, birds, reptiles, fiſhes, and ſhell-animals.

In claſſing quadrupeds, Mr Pennant, as he candidly acknowledges, makes Mr Ray, that celebrated naturaliſt, his principal guide; but, from more recent diſcoveries, and other circumſtances, he has been enabled to improve Mr Ray's arrangement.

Class I. Quadrupeds.

Mr Pennant divides quadrupeds into four orders. I. Hooſed quadrupeds, as the horſe, ox, ſheep, deer, &c. II. Digitated, or toed, quadrupeds, including apes, monkies, dogs, cats, &c. III. Pinnated or finned, as the walrus, ſeals, &c. IV. Winged quadrupeds,

drupeds, as all the bats, twenty one ſpecies of which are known and deſcribed.

Class II. Birds.

This numerous claſs of animals Mr Pennant comprehends under two great diviſions, viz. I. Land birds. II. Water birds. Theſe two he ſubdivides into nine orders: Diviſion I. Land birds. Order 1. Rapacious birds, as the vultures, falcons, owls, &c. 2. Pies, as the parrot, cuckoo, crow, kingſiſher, &c. 3. Gallinaceous, as the turkey, peacock, partridge, &c. 4. Columbine, including all the ſpecies or varieties of pigeons. 5. Paſſerine, comprehending all the ſmall birds, from the ſize of a thruſh to that of the golden-creſted wren, of which the lark, the wagtail, the ſwallow, &c. are examples. 6. Struthious. This order includes the dodo, the oſtrich, and caſſowary, the moſt limited of all the ſubdiviſions of the feathered tribes. Diviſion II. Order 7. Cloven-footed, or waders, as the heron, ſnipe, plover, &c. 8. Birds with pinnated feet, as the coot, grebe, &c. 9. Web-footed, as the duck, gull, pelican, &c.

Class III. Reptiles.

Mr Pennant defines this claſs in the following terms: 'Body 'covered either with a ſhell or ſtrong hide, divided by ſutures; four 'fin-like feet; and a ſhort tail.' Under this claſs are comprehended the tortoiſe, the frog, the lizard, the viper, and the ſnake kinds.

Class IV. Fishes.

These animals Mr Pennant ſeparates into three orders, or diviſions. I. Cetaceous fiſhes, comprehending all the whale-tribe. II. Cartilaginous fiſhes, or fiſhes whoſe muſcles are ſupported by cartilages, inſtead of bones. The lamprey, ſkate, ſhark, &c. are examples. III. Bonny fiſhes, whoſe muſcles are ſupported by bones or ſpines. In the ſubdiviſions of this order, Mr Pennant follows Sir Charles Linnæus. 1. Apodal, or fiſhes which are deſtitute of ventral fins, as the eel, wolf-fiſh, ſword-fiſh, &c. 2. Jugular, or fiſhes which have the ventral fins placed before the pectoral, as in the haddock, cod-fiſh, &c. 3. Thoracic, or fiſhes with the ventral fins ſituated beneath the pectoral, as in the flounder, perch, mackerel, &c. 4. Abdominal, or fiſhes whoſe ventral fins are placed behind the pectoral, as in the ſalmon, pike, herring, carp, &c.

Class V. Crustaceous Animals.

Under this claſs Mr Pennant comprehends the numerous tribes of crabs, lobſters, &c.

Class VI. Worms.

These are divided into, I. The inteſtine; II. The ſoft; III. The teſtaceous. Under diviſion I. Mr Pennant comprehends the hair worm, the aſcarides, and ſuch worms as infeſt the inteſtines of men and

and other animals, leeches, &c. II. Molluſca, or ſoft-worms, as the ſlug, the aphrodita, the cuttle-fiſh, &c. III. Teſtaceous, or animals furniſhed with ſhells. Theſe are ſubdivided into, *a.* Multivalved ſhells, as the barnacle, &c. *b.* Bivalved ſhells, as the muſcles, razor-ſhell, oyſter, cockle, ſcallops, &c. *c.* Turbinated ſhells, or thoſe which have ſpiral turns, as the turbo, or wreath, the periwinkle, the terebra or auger, garden ſnail, &c. *d.* Univalve ſhells not turbinated, as the common limpet, &c.

I AM not without apprehenſion that this Chapter, to ſome readers, may appear to be dry and unintereſting. I ſhall only remark, that it has coſt me much labour, as muſt be evident from the numerous and voluminous works which I have been obliged to peruſe and analyſe. This much I muſt be allowed to ſay, that, when I began the ſtudy of Natural Hiſtory, ſuch an analytical account of the writings on that ſubject, from Ariſtotle to the preſent time, would not only have been highly grateful, but would have ſaved me more time and ſtudy than I can deſcribe. If it ſhall be ſo fortunate as to facilitate the labours, or rather prevent young men from the neceſſity of undergoing the ſame labour, I ſhall be happy in the reflection, that I have at leaſt endeavoured to be uſeful to thoſe explorers of the wonderful works of that inſcrutable BEING who planned and executed what Man, who arrogantly ſtyles himſelf the LORD of CREATION, can never be able fully to unfold. Reflections of this kind, however, ſhould rather ſtimulate than depreſs the ſpirit of human inquiry.

CHAP.

CHAPTER II.

Of the Multiplication and Continuation of Species.

IN treating of this moſt intricate and delicate ſubject, I ſhall endeavour to avoid every idea that might lead to wantonneſs, or impropriety. No philoſophical inquiry into the wonderful operations of Nature, if expreſſed in irreproachable terms, can merit reprehenſion.

SECT. I.

Of the diviſion of Animals into viviparous and oviparous—Some Animals belong to neither of theſe diviſions.

THE idea of dividing animals into *Viviparous* and *Oviparous* muſt have been as antient as the exiſtence of human beings. But the diſcovery, that many of the ſmaller animals were endowed with the faculty of multiplying without the intervention of either of theſe modes of procreation was reſerved to a very modern age. This diſcovery was made partly by natural obſervation, but more extenſively by the aid of the microſcope. In the firſt volume of this work, I have given many examples of ſingular modes by which Nature has enabled particular animals to multiply their ſpecies *. It would, therefore, be ſuperfluous here to ſay more upon that ſubject.

SECT.

* Vol. I. p. 30. et ſeq.

SECT. II.

An account of the principal Theories, both antient and modern, which have been publiſhed on this ſubject; particularly with regard to the larger Animals.

THE doctrine of equivocal generation, or the production of animated beings by a fortuitous commixture of inert and corrupted materials, though firmly believed by the antients, has of late been ſo completely refuted by Redi, and other unprejudiſed inveſtigators of the genuine operations of Nature, that it deſerves no farther notice.

§ I.—HIPPOCRATES, who lived above five hundred years before Ariſtotle, taught an opinion upon this ſubject, which was adopted by Galen, and by moſt phyſicians for many ages. Hippocrates maintained the exiſtence of a female fluid, and even that both the male and the female had two fluids, the one ſtrong and active, the other weaker and leſs active *. A concurrence of the two ſtronger fluids, he remarks, produces a male, and of the two weaker, a female. This abſurd notion he endeavours to ſupport by obſerving, that ſeveral women, who produced girls only by their firſt huſband, have had boys by their ſecond; and that the ſame thing has often happened to men who have had two wives. Hippocrates next tells us, that

* Hippocrat. lib. de Genitura, p. 129. et lib. de Diæta, p. 198. Lugd. Bat. tom. 1. 1665.

that the ſemen proceeds from every part of the body, and particularly from the head; becauſe, he remarks, thoſe who have had the veins behind their ears cut, ſecrete only a weak and often an unfertile ſemen. The female likewiſe ſheds a ſeminal fluid ſometimes within and ſometimes without the uterus. The ſemen of the male enters the uterus, and intermixes with that of the female; and, as each poſſeſſes two kinds of fluid, the one ſtrong and the other weak, if both of them furniſh the ſtrong kind, a male foetus is the conſequence; and, if both furniſh the weak kind only, the reſult is a female: Beſides, if in the mixture there are more particles of the male than of the female fluid, the child will reſemble the father more than the mother; *et e contra*.

We ſhall now exhibit a ſhort account of Hippocrates's notion of the mode by which the foetus is formed. The ſeminal fluids, ſays he, firſt mix in the uterus, and gradually thicken by the heat of the mother. The mixture extracts the ſpirit of heat, and, when too warm, part of the heat eſcapes into the air. But a cold ſpirit is likewiſe conveyed to it by the reſpiration of the mother. Thus a cold and a hot ſpirit alternately enter the mixture, give life to it, and cover its ſurface with a pellicle, which aſſumes a round figure, becauſe the ſpirits, by acting in the center, expand the matter equally on all ſides. I have ſeen, this great philoſopher remarks, a foetus of ſix days old: It was a ball of liquor incloſed in a pellicle. The liquor was reddiſh; and the pellicle was interſperſed with red and colourleſs veſſels. In the middle of the liquor there was a ſmall eminence, which I imagined conſiſted of the umbilical veſſels, by which the foetus receives nouriſhment and the ſpirit of reſpiration from the mother. A ſecond covering or pellicle gradually forms above the firſt. Plenty of nouriſhment is furniſhed by the menſtrual blood, which coagulates

lates and is converted into fleſh. This fleſh gradually articulates, and derives its form from the ſpirit. Every part aſſumes its proper ſtation; the ſolid parts unite; the moiſt particles aſſociate by themſelves; every thing ſearches for what is analogous to it; and, in fine, the foetus, by the operation of theſe cauſes, is completely formed.

§ 2.—The next theory we ſhall mention is that of the celebrated ARISTOTLE. After enumerating ſome varieties in the ſtructure and modes of multiplying exhibited to our obſervation by different ſpecies of animals, he examines the opinion of the more antient philoſophers, who maintained that the ſemen of both male and female was extracted from every part of the body. Ariſtotle diſſents from this opinion; becauſe, ſays he, though children often reſemble both father and mother, they ſometimes alſo reſemble their grandfathers. Beſides, they reſemble their parents in the voice, in the hair, in the nails, and in the gait and manner of walking. Now, proceeds our author, it is impoſſible for the ſemen to come from the hair, from the voice, from the nails, or from any external quality, as that of the mode of walking. Hence children reſemble not their parents becauſe the ſemen proceeds from all parts of the body. The ſeminal liquor of the male, Ariſtotle remarks, is ſecreted from the blood; and the menſtrual fluid of the female is likewiſe a ſecretion from the blood, and the only matter that contributes to generation. Females, he continues, have no other proliſic fluid; no mixture, therefore, of male and female fluids take place. This he attempts to prove by obſerving, that ſome women conceive without any titillation; that few emit any fluid in coition; that, in general, thoſe who are brown, with a maſculine air, have no emiſſion, and yet their powers of pro-

creation are not leſs than thoſe of a fairer complexion and more delicate appearance, who emit copiouſly. Thus, he concludes, women furniſh nothing for the purpoſes of generation, but the menſtrual blood. This blood is the matter of generation, and the male fluid contributes the form only. The male fluid is the efficient cauſe, and the chief principle of motion; it is to generation what the ſculptor is to a block of marble: The ſeminal fluid is the ſculptor, the menſtrual blood the marble, and the fœtus the figure. The male ſemen gives to the menſtrual blood both life and motion, or a kind of ſoul. This ſoul is neither material nor immaterial, becauſe it can neither act upon matter, nor augment the menſtrual blood, which is the only matter neceſſary to generation. It is a ſpirit, ſays our philoſopher, ſimilar to that of the element of the ſtars. The heart is the firſt production of this ſoul; which is the cauſe of its own growth, and of the growth and diſpoſition of all the other members. The menſtrual blood contains the *capacities* of all the parts of the fœtus; the ſoul or ſpirit of the male ſemen makes the heart begin to *act*, and communicates to it the powers of beſtowing action on the other viſcera; and, in this manner, the different parts of the animal are ſucceſſively unfolded.

Theſe two great men have had each their followers. Moſt of the ſcholaſtic philoſophers adopted Ariſtotle's theory of generation; but the ancient phyſicians, in general, adhered to the theory of Hippocrates. In this manner near eighteen centuries paſſed without the veſtige of any thing new concerning this myſterious ſubject. Upon the revival of literature, however, anatomiſts began to make reſearches into the nature of generation.

§ 3.—FABRICIUS AB AQUAPENDENTE firſt made a courſe of experiments

experiments upon the impregnation and expanſion of the eggs of fowls, the ſubſtance of which ſhall be laid before the reader. Fabricius diſtinguiſhes the matrix of a hen into two parts, the one ſuperior, the other inferior. The ſuperior part, which he calls the *ovarium*, contains an aſſemblage of a great number of ſmall yellow eggs, of a round figure, the ſizes of which vary from that of a muſtard ſeed to that of a walnut. Theſe eggs are attached to one another by foot-ſtalks, and the whole group has a reſemblance to a bunch of grapes.

After impregnation, an egg is detached from the common pedicle, and gradually deſcends, through a winding canal, into the inferior part of the matrix. The canal is filled with a liquor ſimilar to the white of an egg. In this canal the egg receives its white liquor, the membrane in which it is incloſed, the two cords *(chalazae)* that run through the white, and join it to the yolk, and the ſhell, which is ſuddenly formed before excluſion. Theſe cords, ſays Fabricius, are the part of the egg which is impregnated by the ſeminal ſpirit of the male; and it is here alſo that the rudiments of the fœtus firſt make their appearance. The egg is not only the true matrix, or the place where the fœtus is formed, but upon it the whole proceſs of generation depends. The egg is the great agent in generation; it furniſhes both the matter and the organs. The ſubſtance of the cords is the matter of which the chick is formed; the white and the yolk ſupply it with nouriſhment; and the ſeminal ſpirit of the male is the efficient cauſe. This ſpirit communicates to the cords, firſt, an alterant quality, then a forming quality, and, laſtly, a power of augmenting, &c.

§ 4.—HARVEY, our celebrated countryman, who, at ſo late a

period, it is almoſt incredible to think, firſt diſcovered the circulation of the blood, has likewiſe given us an ingenious treatiſe on generation. He flouriſhed about the middle of laſt century, and was phyſician to Charles I. He alledges, that men, and all other animals, proceed from eggs; that, in viviparous animals, the firſt produce of conception is a kind of egg; and that the only difference between the viviparous and oviparous is, that, in the former, the fœtus begins to exiſt, increaſe, and arrive at its full growth while it remains in the uterus; but that, in oviparous animals, the fœtus begins to exiſt, when in the form of an egg, in the body of the mother, and it is only after excluſion and incubation, that it becomes a living animal. It farther deſerves to be remarked, ſays he, that, in oviparous animals, ſome retain their eggs till they be perfect, as birds, ſerpents, and oviparous quadrupeds; and that others exclude their eggs before they have arrived at maturity, as fiſhes, cruſtaceous, and teſtaceous animals. The eggs laid by theſe creatures are only the rudiments of eggs, which afterwards acquire membranes and a white, and attract nouriſhment from the matter with which they are ſurrounded. He adds, that there are inſects, caterpillars, for example, which are only imperfect eggs; they ſearch for and take nouriſhment, and, at the end of certain times, they arrive at the chryſalis ſtate, which is a perfect egg. Another difference is remarkable in oviparous animals: The eggs of hens, and of other birds, are of different ſizes, but thoſe of fiſhes, frogs, &c. who lay them before they are perfect, are all of the ſame ſize. He indeed obſerves, that, in pigeons, who lay two eggs, all the ſmall eggs, which remain in the ovarium, are of the ſame bulk; and that the two only which are next to be excluded exceed the ſize of the reſt. The ſame phænomenon takes place in cartilaginous fiſhes, as in the ray, which brings to maturity only two eggs at a time.

Harvey

Harvey next deſcribes anatomically the parts neceſſary to generation; and he remarks, that the ſituation of the anus and vulva in birds differs from that of all other animals, the anus being placed before, and the vulva behind. Hens produce eggs without the intervention of the cock; but, though ſeemingly perfect, they are fewer in number, and totally unfertile. He credits not the common opinion, that a few days intercourſe with the cock are ſufficient to impregnate all the eggs which a hen ſhall lay during a whole year; but he acknowledges, that he ſeparated a hen from the cock for twenty days, and that all the eggs ſhe laid were fecundated.

The two cords *(chalazae)* which Fabricius ab Aquapendente conſidered to be the germ, or part produced by the male ſemen, are found in unimpregnated, as well as impregnated eggs; and Harvey juſtly remarks, that theſe parts neither proceed from the male, nor receive the impregnation. The part of the egg which receives the impregnation is a ſmall white circle ſituated upon the membrane that covers the yolk, and has the appearance of a cicatrice about the ſize of a lentil. Harvey likewiſe remarks, that this cicatrice is found in all eggs, whether they be fecundated or not; and that thoſe are deceived who imagine it to be produced by the ſemen of the male. It is of the ſame ſize and form in freſh eggs as in thoſe which have been long kept. But, as ſoon as the proceſs of hatching is begun, whether by artificial heat or by that of the hen, this ſmall mark or cicatrice gradually augments and dilates like the pupil of the eye. This is the firſt change, and it is viſible after a few hours of incubation. When the egg has been heated 24 hours, the yolk, which was formerly in the centre, riſes towards the cavity at the thick end of the egg. This cavity is occaſioned by the evaporation of the more fluid part of the white, the heavier part of which falls down to the

ſmall

ſmall end. The cicatrice or ſpeck on the membrane of the yolk is elevated along with it, and applies itſelf to the membrane which lines the cavity at the thick end. This ſpeck is now as large as a pea; and a white point is diſtinguiſhable in the middle of it, with ſeveral circles, of which that point appears to be the common centre.

At the end of the ſecond day, theſe circles are larger and more conſpicuous; and they divide ſometimes into two, and ſometimes into three parts, which are of different colours. A ſmall external protuberance likewiſe appears, nearly reſembling a little eye, with a white point or cataract on the pupil. Between the circles is contained a tranſparent liquor by means of a very thin membrane. The ſpeck, which is now become a ſmall liquid globe, appears as if it were ſituated in the white, rather than on the membrane of the yolk. On the third day, the tranſparent liquor, as well as the membrane in which it is incloſed, is conſiderably augmented. On the fourth day, a ſmall line of blood, of a purple colour, appears on the circumference of the liquid globe; and, at a little diſtance from the centre, we perceive a dot or point, of a bloody colour, which has pulſations like a heart. It is viſible at every diaſtole, and diſappears during the ſyſtole. Two ſmall blood-veſſels iſſue from this animated point, and terminate in the membrane which contains the tranſparent liquor. Theſe blood-veſſels ſet off from the ſame place nearly in the ſame manner as the roots of a tree ſet off from the trunk. It is in the angle which theſe roots form with the trunk, and in the middle of the liquor, that the animated point is ſituated.

About the end of the fourth, or beginning of the fifth day, the animated point is ſo much enlarged, that it has the appearance of a ſmall bladder filled with blood; and by its contractions and dilatations,

tions, it is alternately filled and emptied. On the ſame day, we perceive diſtinctly, that this bladder is divided into two parts, each of which dilates and contracts in the ſame manner. Round the ſhorteſt of the blood-veſſels mentioned above, a kind of cloud appears, which, though almoſt tranſparent, obſcures the view of the veſſel. This cloud becomes every hour thicker; it attaches itſelf to the root of the blood-veſſel, and ſeems to depend from it like a ſmall globe. This globe ſtretches out, and appears to divide into three parts, one of which is globular, and larger than the other two; and here we perceive the rudiments of two eyes, and of the whole head. At the end of the fifth day, in the remainder of this lengthened globe, the commencement of the vertebrae. On the ſixth day, the parts of the head are more apparent. We can diſtinguiſh the coats of the eyes, the thighs, and the wings; and then the liver, the lungs, and the beak. The foetus now begins to move and to ſtretch out its head, though, of the inferior parts, nothing but the viſcera are yet formed; for the thorax, the abdomen, and all the external coverings of the fore part of the body, are ſtill wanting. At the end of this day, or the beginning of the ſeventh, the claws begin to be viſible; the chick opens and moves its beak; and the anterior parts of the body begin to cover the viſcera. On the ſeventh day, the chick is entirely formed; and, from this time till it iſſues from the egg, nothing remarkable happens but a gradual expanſion of all the parts it had acquired during the firſt ſeven days. The feathers appear on the 14th or 15th day; and, on the 21ſt, the chick eſcapes from the egg, by breaking the ſhell with its bill.

Beſide theſe experiments upon eggs, Harvey made many others upon female deer. They receive the male about the middle of September.

tember. A few days afterwards, the *horns* * of the uterus appear to be thicker and more fleſhy than uſual. They are, at the ſame time, more flaccid; and, in each of their cavities, five carunculae, or ſoft warts, appear. About the 26th or 28th of September, the uterus is ſtill thicker; and the five carunculae are ſwelled nearly to the ſize and form of a nurſe's nipple. On opening them with a ſcalpel, they appeared to be filled with an infinite number of white points.

About the end of October, or the beginning of November, when the females were ſeparated from the males, the thickneſs of the *horns* began to diminiſh, and their internal ſurfaces were ſwelled, and ſeemed to be glued together. The carunculae ſtill remained; and the whole maſs reſembled the ſurface of the brain, being ſo ſoft that it could not be touched without derangement. Harvey farther informs us, that on the 13th or 14th of November, he perceived thin filaments, like thoſe of a ſpider's web, which traverſed the cavities of the *horns*, and even that of the uterus itſelf. Theſe filaments derived their origin from the ſuperior angle of the *horns*, and, by their number, formed a kind of membrane or empty ſac. A day or two afterwards, this ſac was filled with a white, aqueous, viſcid matter, which adhered to the uterus by a ſpecies of mucilage; and the adheſion was moſt apparent at the ſuperior part of the uterus, where the rudiments of the placenta began then to appear. In the third month, this ſac contained an embryo about an inch and a half in length, and likewiſe an internal ſac, called the *amnios*, incloſing a tranſparent cryſtalline liquor, in which the foetus ſwam. At firſt, the foetus was only an animated point, like that which appeared in the hen's egg. Every

* Two fleſhy proceſſes, one of which iſſues from each ſide of the *fundus uteri*, in the from of little *horns*, and are remarkable in ſome quadrupeds.

Every thing now proceeded and terminated in the ſame manner as deſcribed with regard to the chick, with this difference only, that the eyes of the chick appeared much earlier than thoſe of the deer. About the 19th or 20th of November, the animated point was viſible. A day or two afterwards, the oblong body, which contained the rudiments of the foetus, made its appearance. In ſix or ſeven days more, the foetus was ſo completely formed, that all its members, and even its ſex, were diſtinguiſhable. But the heart and viſcera were ſtill bare; and it was not till a few days after, that they were covered with the abdomen and thorax. This, Harvey remarks, is the laſt work, and the ſlating of the edifice.

From his experiments upon hens and deer, Harvey infers, that all female animals have eggs; that, in theſe eggs, a ſeparation of a tranſparent cryſtalline liquor, contained in a ſac *(amnios)*, takes place, and that another external ſac *(chorion)* incloſes the whole fluids of the egg; that, in the cryſtalline liquor, the firſt object which appears is an animated ſanguineous point; and, laſtly, that the original formation of viviparous animals is effected in the ſame manner with that of the oviparous. Harvey farther concludes, that generation is an operation of the uterus alone; for not a drop of the male ſemen ever enters that organ. The uterus, he aſſerts, conceives by a kind of contagion communicated to it by the ſemen of the male, in the ſame manner, nearly, as the load-ſtone communicates a magnetic virtue to iron. This male-contagion acts not only on the uterus, but on the whole body of the female, which is entirely fecundated, though the uterus alone poſſeſſes the faculty of conception, in the ſame manner as the brain has the ſole power of conceiving ideas. The ideas, or impreſſions, conceived by the brain, are ſimilar to the images of the objects tranſmitted to it by the ſenſes; and the foetus,

which may be conſidered as the idea of the uterus, is ſimilar to that by which it is produced. Hence the reaſon why children reſemble their fathers, &c.

§ 5.—ABOUT fifty years after the trials of Harvey, MALPIGHIUS* carefully examined the cicatrice, which is the moſt eſſential part of an egg: He found that it was large in impregnated eggs, and ſmall in thoſe which had received no impregnation. He likewiſe diſcovered, that, in eggs which had never been ſat upon, the white point mentioned by Harvey as the firſt part that aſſumes animation, is a ſmall purſe or bubble ſwimming in the liquor bounded by the firſt circle; and that the embryo is viſible in the centre of this purſe. The membrane of the purſe, which is tranſparent, allowed him to ſee diſtinctly the fœtus within it. Malpighius, from this firſt obſervation, concludes with propriety, that the foetus exiſts in the egg before incubation, and that the rudiments of the embryo are even then deeply rooted. After aſcertaining this important fact, Malpighius proceeded to examine the cicatrice of unimpregnated eggs, which is ſmaller than in thoſe which had received an impregnation. Near the centre of the cicatrice, inſtead of a bubble including the foetus, there is a globular mole or unorganized maſs, which, when opened, exhibits nothing like regularity or arrangement of parts: It has only ſome appendages filled with a viſcid but tranſparent liquor; and this unformed maſs is enveloped in ſeveral concentric circles.

After ſix hours incubation, however, the cicatrice is conſiderably enlarged; and, in its centre, a bubble or globule, formed by the amnios,

* Malpighii pullus in ovo.

nios, is eaſily diſtinguiſhed. This globule is filled with a fluid, in the middle of which the head and back-bone of the chick are viſible. Six hours afterwards, the parts are all enlarged, and, of courſe, more apparent. In ſix hours more, that is, eighteen hours from the commencement of incubation, the head is larger, and the ſpine is lengthened; and, at the end of twenty-four hours, the head has acquired a bended poſture, and the ſpine is of a whitiſh colour. The vertebrae are ranged on each ſide of the ſpine, like ſmall globules; and, about the ſame time, the wings begin to ſhoot, and the head, neck, and breaſt are lengthened. At the end of thirty hours, nothing new appears, except that all the parts are enlarged, and particularly the amnios. Around this membrane, we can perceive the umbilical veſſels, which are of a dark colour. In thirty eight hours, the head of the chick is very large, and three veſicles appear in it ſurrounded with membranes, which likewiſe include the ſpine of the back, through which, however, the vertebrae are ſtill viſible. At the end of forty hours, it was admirable to obſerve, continues our author, the chick living in the centre of the liquor contained in the amnios. The back-bone was increaſed, the head was bended, the veſicles of the brain were leſs bare, the rudiments of the eyes appeared, the heart beat, and the blood circulated.

At the end of the ſecond day, the foetus appeared ſwimming in the liquor of the amnios; the head, which appeared to be compoſed of veſicles, was bended; the back-bone and vertebrae were lengthened; the heart, which hung out of the breaſt, always beat three times ſucceſſively, becauſe the fluid it contains is puſhed from the auricle into the ventricles, from the ventricles into the arteries, and, laſtly, into the umbilical veſſels. In fourteen hours more, or ſixty-two hours from the beginning of incubation,

the chick, though ſtronger, remained ſtill with its head bended in the liquor of the amnios: Veins and arteries were perceived in the brain; and the rudiments of the eyes, and of the ſpinal marrow, appeared. At the end of three days, the body of the chick was crooked. Beſide the two eyes, five veſicles filled with liquor were ſeen in the head; the rudiments of the thighs and of the wings were diſcerned; the body began to aſſume fleſh; and the pupils of the eyes, and likewiſe the cryſtalline and vitreous humours, were diſtinguiſhable. At the termination of the fourth day, the veſicles of the brain were nearer each other; the proceſſes of the vertebrae were longer; the wings and the thighs had become ſtronger in proportion as they grew longer; the whole body was covered with a gelatinous fleſh; the umbilical veſſels had pierced through the abdomen; and the heart was incloſed by a thin tranſparent membrane. On the fifth, and at the end of the ſixth day, the veſicles of the brain began to be covered; the ſpinal marrow, which was now more ſolid, was divided into two parts, and advanced along the trunk; the thighs were longer, and the wings were unfolded; the abdomen was ſhut and tumified; the liver was diſtinctly viſible, and of a dark colour; the two ventricles of the heart beat; the body of the chick was covered with ſkin; and the points of the feathers began to appear. On the ſeventh day, the head was very large; the brain was covered with its membranes; the beak appeared between the two eyes; the wings, the thighs, and the legs, had acquired their perfect form; the heart ſeemed to be compoſed of two ventricles, like two contiguous globules, united at their ſuperior part with the auricles; and two ſucceſſive pulſes were remarked both in the ventricles and auricles, as if there had been two ſeparate hearts.

§ 6.

§ 6.—We ſhall now give a ſhort account of De Graaf's experiments upon rabbits. He diſſected a female rabbit half an hour after copulation. The horns of the uterus, he remarks, were uncommonly red. No change had taken place in the ovaria, nor in the eggs which they contained; and there was not a veſtige of ſemen in the vagina, in the uterus, or in the Fallopian tubes. Six hours after copulation, he diſſected another rabbit; and obſerved that the follicles, which, in his eſtimation, contain the eggs in the ovarium, were become red; but he found no ſemen either in the ovaria or any where elſe. Twenty hours after copulation, he diſſected a third rabbit; and remarked in one ovarium three, and in the other five follicles much altered; for, inſtead of being clear and limpid, they were opaque and reddiſh. In another, diſſected twenty-ſeven hours after copulation, the horns of the uterus, and the ſuperior canals which terminate in them, were ſtill more red, and their extremities embraced the ovarium on all ſides. In another, opened forty hours after copulation, he found in one ovarium ſeven, and in the other three follicles charged. Fifty-two hours after copulation, he examined another, and diſcovered in one ovarium four charged follicles, and one in the other. Having opened theſe follicles, he diſcovered in them a kind of glandular liquor, with a ſmall cavity in the middle, in which he could perceive no fluid. This circumſtance led him to ſuſpect that the tranſparent liquor, uſually contained in the follicles, might have been diſcharged by ſome rupture of the membranes. He ſearched in vain for this matter in the canals which terminate in the horns of the uterus, and in the horns themſelves. He remarked, however, that the membranes which line the horns of the uterus were much ſwelled. In another rabbit, diſſected three days after copulation, he obſerved, that the ſuperior extremity of the canal, which terminates in the horns of the uterus, ſtraitly embraced

braced each ſide of the ovarium; and, after ſeparating it from the ovarium, he perceived, in the right ovarium, three follicles ſomewhat larger and harder than uſual. After carefully ſearching the canals formerly mentioned, he tells us, that he diſcovered an egg in the right canal, and two more in the right horn of the uterus; but they exceeded not the ſize of muſtard ſeeds. Theſe little eggs had each two membranes, of which the internal one was filled with a limpid liquor. Upon examining the other ovarium, he found four charged follicles; three of them were whiter, and had ſome limpid fluid in their centres; but the fourth was of a darker colour, and contained no liquor, which made him ſuſpect that the egg had deſcended. He therefore ſearched the correſponding canal and horn of the uterus, and found an egg in the ſuperior extremity of the horn, which was exactly ſimilar to thoſe he had diſcovered in the right horn. He ſays, that the eggs, when ſeparated from the ovarium, are ten times ſmaller than before their ſeparation. The difference in ſize, he imagines, is owing to this circumſtance, that the eggs, while in the ovarium, contain another matter, namely, the glandulous liquor which he remarked in the follicles.

He opened another rabbit, four days after copulation, and he found in one ovarium four, and, in the other, three follicles void of eggs. In the horns of the uterus correſponding to the ovaria, he found four eggs in the one, and three in the other. Theſe eggs were larger than thoſe he had diſcovered three days after copulation. They were nearly as large as the lead uſed for ſhooting ſmall birds; and he remarked, that, in theſe eggs, the interior membrane was ſeparated from the exterior, and the whole appeared as if a ſecond egg was contained within the firſt. In another rabbit, diſſected five days after copulation, he found five empty follicles in the ovaria,

and

and the ſame number of eggs in the uterus, to which they firmly adhered. Theſe eggs were as large as the ſhot employed for killing hares, and the interſial membrane was ſtill more apparent than in the laſt experiment. Six days after copulation, he opened another rabbit; and, in one of the ovaria, found ſix empty follicles, but five eggs only in the correſponding horn of the uterus, and they ſeemed to be all accumulated into one maſs: In the other ovarium, he ſaw four empty follicles, and found but one egg in the correſponding horn. Theſe eggs were of the ſize of the largeſt fowling ſhot. Our anatomiſt opened another rabbit ſeven days after copulation, and found in the ovaria ſome empty follicles, which were larger, harder, and more red than thoſe he had formerly obſerved. He perceived as many tranſparent tumors in different parts of the uterus. Having opened theſe tumors, he took out the eggs, which were as large as ſmall piſtol bullets. The internal membrane was now more diſtinct than formerly; and within this membrane he ſaw nothing but a very tranſparent liquor. In another rabbit, diſſected eight days after copulation, he found in the uterus the tumors or cells which contain the eggs; but they adhered ſo firmly to the uterus, that he could not detach them. Nine days after copulation, he found the cells containing the eggs greatly enlarged, and perceived in the middle of the liquor incloſed by the internal membrane a thin ſmall cloud. Ten days after copulation, he found, in another rabbit, that the ſmall cloud was thicker and darker, and formed an oblong body reſembling a little worm. Twelve days after copulation, he perceived diſtinctly the embryo, which was now ſo apparent, that he could diſtinguiſh its different members. He ſaw, in the region of the breaſt, two red and two white points, and, in the abdomen, a reddiſh mucilaginous ſubſtance. The head of the fœtus, fourteen days after copulation, was large and tranſparent; the eyes were prominent;

nent; the mouth was open; the ears began to appear; the back-bone was whitiſh, and bended towards the ſternum. From each ſide of the ſpine, ſmall blood-veſſels aroſe, the ramifications of which extended along the back as far as the legs. The two red points were now conſiderably enlarged, and ſeemed to be the rudiments of the two ventricles of the heart. On each ſide of the red points he ſaw two white ones, which were the rudiments of the lungs. In the abdomen, he perceived the rudiments of the liver, which was reddiſh, and a ſmall body twiſted like a thread, which was the ſtomach and inteſtines. After this, till the 31ſt day, when the female rabbit brings forth, nothing was to be remarked but the gradual expanſion and growth of the parts which had already been formed.

De Graaf, from theſe experiments, concludes, that all viviparous animals have eggs; that theſe eggs are contained in the ovaria or teſticles; that they cannot be detached till they are fecundated by the male ſemen; becauſe, he remarks, the glandular liquor, by means of which the eggs are enabled to eſcape from their follicles, is not ſecreted till after impregnation. He alledges that thoſe who imagine they have ſeen pretty large eggs in three days have been deceived; becauſe, in his eſtimation, the eggs, though fecundated, remain longer in the ovarium, and, inſtead of augmenting, become ten times leſs than formerly, and never begin to grow till after their deſcent from the ovaria into the uterus.

This pretended diſcovery of eggs in the teſticles of females attracted the attention of many anatomiſts. In the teſticles of viviparous females, however, they found only ſmall bladders, which they did not heſitate to conſider as real eggs; and, therefore, they called the teſticles *ovaria*, and the veſicles *eggs*. They likewiſe aſſerted, that the

the ſize of theſe eggs differed in the ſame ovarium; that the largeſt in the ovaria of women did not exceed the bulk of a ſmall pea; that they are very minute in young girls; but that they increaſe with age and intercourſe with men; that not above 20 could be diſcovered in each ovarium; that theſe eggs are fecundated in the ovarium by the ſpiritous part of the male ſemen; that, after impregnation, they ſeparate, and fall into the uterus through the Fallopian tubes; that the fœtus is formed of the internal ſubſtance of the egg, and the placenta of its external part; that the glandulous matter, which does not exiſt in the ovarium till after a fruitful embrace, compreſſes the egg, and forces it to part from the ovarium, &c.

But, of all anatomiſts, Malpighius and Valiſnieri ſeem to have written with moſt judgment upon this intricate ſubject. Malpighius, after examining the teſticles of many cows and other female animals, aſſures us, that he found in all of them veſicles of different ſizes, whether the females were very young, or adults. Theſe veſicles are incloſed in a membrane, the inſide of which is interſperſed with blood-veſſels; and the veſicles are filled with a kind of lymph or liquor, which, like the white of an egg, coagulates and hardens when expoſed to the heat of a fire. In proceſs of time, a firm yellow body adheres to the teſticles. It is prominent, increaſes to the ſize of a cherry, and occupies the greateſt part of the ovarium. This body conſiſts of ſeveral angular lobes, the poſition of which is very irregular, and it is covered with a membrane interſperſed with nerves and blood veſſels. When the yellow body exceeds not the ſize of a grain of millet, it is roundiſh, and its ſubſtance, when cut, has a warty appearance. When it has acquired nearly the ſize of a pea, it is ſhaped like a pear; and, in its centre, there is a ſmall cavity filled with liquor. In ſome of theſe yellow bodies, after they

have come to maturity, Malpighius aſſerts, that, in the yellow bodies, he ſaw, near the centre, a ſmall egg, about the ſize of a millet ſeed; and that, after they had diſcharged the eggs, theſe bodies became empty and flaccid. He ſuppoſed that Nature deſigned this yellow glandulous body for the preſervation of the egg, and for making it eſcape from the teſticles; and, perhaps, he remarks, it contributed to the formation of the egg; and, conſequently, he concludes, that the veſicles, which are at all times found in the ovarium, and always differ in ſize, are not the real eggs which receive the impregnation, but only ſerve to produce the yellow bodies in which the eggs are formed. Beſides, though theſe yellow bodies are not uniformly found in every ovarium; yet the rudiments of them are always apparent. Malpighius found the marks of them in new born heifers, in cows with calf, and in pregnant women; and, therefore, he concludes, that theſe yellow glandular bodies are not, as alledged by De Graaf, a reſult of impregnation. The yellow bodies, he remarks, produce unfecundated eggs, which fall out of the ovarium independent of any communication with the male, as well as thoſe which fall after impregnation. When impregnated eggs fall into the uterus, every thing proceeds in the manner which De Graaf has deſcribed.

§ 7.—We ſhall now give an abridged view of the remarks of Valisnieri, a diſciple of Malpighius. In the year 1692, he began his experiments upon the teſticles of the ſow, which differ from thoſe of cows, of mares, of ſheep, and of moſt other viviparous animals; for they reſemble a ſmall bunch of raiſins, the grains of which are round and prominent. Between theſe grains are ſmaller ones, not yet arrived at maturity. Theſe grains ſeem not to be covered

vered with any common membrane. They are, he remarks, analogous to the yellow bodies obſerved by Malpighius in cows; they are round, and of a reddiſh colour; their ſurface is interſperſed with blood-veſſels; and the whole grains form a maſs which is larger than the ovarium.

In every ſow, the glandular bodies are not of the ſame colour. In ſome, they are more red; in others more clear; and their ſizes vary from that of the ſmalleſt ſeed, to that of a raiſin. When opened, a triangular cavity appears; it is filled with a limpid liquor, which coagulates with heat, and becomes white, like that contained in the veſicles. Valiſnieri expected to find eggs in ſome of theſe cavities. But this expectation was diſappointed; for, though he carefully ſearched all the glandular bodies of a number of ſows, and other animals, he could never diſcover the egg, which Malpighius ſays he once or twice found. Under theſe glandular bodies, the veſicles of the ovarium appeared, which were more or leſs numerous according as the glandular bodies were larger or ſmaller; for, in proportion to the largeneſs of the glandular bodies, the veſicles diminiſhed. Some veſicles were of the ſize of a lentil, and others did not exceed that of a millet ſeed. In the teſticles, when raw, from twenty to thirty-five veſicles might be reckoned; but, when boiled, a much greater number appear; and they are ſo firmly attached, that they cannot be ſeparated without breaking ſome of them. In the teſticles of a young ſow, which had never been impregnated, he found, as in the others, glandular bodies; their triangular cavities were likewiſe filled with lymph; but no eggs could he diſcover in either of them. The veſicles of this young ſow were more numerous than in thoſe which had brought forth, or in thoſe which were impregnated previous to the time of examination. In

the teſticles of another ſow, which was far advanced in pregnancy, Valiſnieri found two of the largeſt glandular bodies, which were flaccid and empty, and others, of a ſmaller ſize, in their uſual ſtate. In others, which he diſſected when with young, he obſerved, that the number of glandular bodies always exceeded that of the foetuſes.

Valiſnieri, after his experiments upon ſows, repeats thoſe of Malpighius upon cows, and found them to be exactly conformable to truth, with this exception that he was never able to diſcover the egg which Malpighius imagined he had ſeen in the interior cavity of the glandular bodies. The experiments of Valiſnieri are not only numerous but accurate. Among other animals, he examined the ewe, and diſcovered, that ſhe has never a greater number of glandular bodies in her teſticles than of foetuſes in the uterus. In young ewes which had never been impregnated, there is but one glandular body in each teſticle; and, when one is emptied, another ſucceeds. This glandular body occupies the greateſt part of the teſticle; and, after it is emptied and diſappears, another begins to anſwer the purpoſes of a future generation. In the teſticles of a ſhe-aſs, he found veſicles as large as cherries. The teſticles of female wolves, dogs, and foxes, are covered with a membrane, like a purſe. In a bitch which began to be in ſeaſon, but had not been approached by the male, Valiſnieri found the internal of this moiſtened with a liquor that reſembled whey, and two glandular bodies in the right teſticle, which occupied nearly the whole extent of the teſticle. In each glandular body was a ſmall nipple, with a fiſſure, from which, without preſſing it, a liquor reſembling clear whey iſſued; he therefore concluded, that this liquor was the ſame which he found in the purſe. Into this fiſſure he blew with a pipe, and the whole glandular body ſwelled. He opened the body, and found an internal cavity which communicated with

with the nipple, and contained a conſiderable quantity of liquor. Valiſnieri was always in hopes that he would diſcover the egg; but, notwithſtanding all his reſearches, his hopes were uniformly fruſtrated. He diſſected another bitch four or five days after receiving the male, and found in the teſticles three glandular bodies perfectly ſimilar to the former. He every where ſearched for the egg, but was ſtill diſappointed. He diſcovered, by means of the microſcope, the glandular bodies to be a net-work compoſed of an infinite number of globular veſicles, which ſerved to filter the liquor that iſſued from the nipple.

Valiſnieri then opened another bitch which was not in ſeaſon; and, after trying to introduce air between the teſticle and the purſe, he found that it dilated like a bladder. Having removed the purſe, he diſcovered two glandular bodies on the teſticles; but they had neither nipple nor fiſſure, and no liquor diſtilled from them. In another bitch, that, two months before, had brought forth five whelps, he found five glandular bodies; but they were much diminiſhed in ſize, and began to diſappear without leaving any cicatrices. A ſmall cavity only remained in their centre, but it contained no liquor.

After theſe and many other ineffectual diſſections made upon a great variety of quadrupeds, Valiſnieri was deſirous of examining the teſticles of women. A young country-woman, who had been ſeveral years married, and was killed by a fall, afforded him the firſt opportunity. Though of a vigorous conſtitution, ſhe had never born any children. He endeavoured to diſcover whether the cauſe of her barrenneſs exiſted in the teſticles; and he found that all the veſicles

were

were filled with a blackiſh corrupted matter. In a girl of eighteen years of age, who had been educated in a convent, and had every mark of virginity, he found the right teſticle a little longer than the left: Its figure was oval, and its ſurface was ſomewhat unequal. This inequality was occaſioned by five or ſix veſicles which protruded on the outſide of the teſticle. One of theſe veſicles, which was more prominent than the reſt, he opened, and a quantity of lymph ruſhed out. A glandular ſubſtance, in the form of a creſcent, and of a reddiſh yellow colour, ſurrounded this veſicle. He cut the teſticle tranſverſely, and found a number of veſſels filled with limpid liquor; and he remarked, that the Fallopian tube of this teſticle was redder and ſomewhat longer than the other, as he had frequently obſerved in other animals, when in ſeaſon. In a girl, aged five years, he found the teſticles with their veſicles, their blood-veſſels, and their nerves. In the teſticles of a woman of ſixty years, he diſcovered ſome veſicles, and the veſtiges of a glandular ſubſtance.

Valiſnieri, from theſe experiments and obſervations, infers, that the work of generation is carried on, and brought to perfection, in the female teſticles, which he perſiſted in regarding as ovaria, though he never could find eggs in them. He likewiſe remarks, that, for the impregnation of the egg, it is not neceſſary that the male ſemen ſhould enter the uterus. He imagines, that the egg, after being impregnated in the ovarium, eſcapes through the nipple of the glandular body; that it then falls into the Fallopian tube; and that it gradually deſcends, and at laſt attaches itſelf to the uterus. The ſpirit of the male ſeed, in his eſtimation, aſcends into the ovarium, penetrates the egg, and gives life and motion to the foetus which previouſly exiſted in it.

This

This ſyſtem of eggs, though it elucidates no branch of the ſubject, and probably has no foundation in Nature, would have received the univerſal aſſent of phyſicians, if, nearly about the ſame time, another hypotheſis had not ſolicited attention: It was founded upon the diſcovery of ſpermatic animalcules by means of the microſcope.

§ 8.—THIS diſcovery, which we owe to LEUWENHOEK and HARTSOEKER, was confirmed by Andrii, Valiſnieri, Bourguet, and many other philoſophers, and diligent obſervers. In male ſemen, the number of animalcules is ſo great, that it ſeems to be entirely compoſed of them; and Leuwenhoek tells us, that he ſaw many millions of them in a drop leſs that the ſmalleſt grain of ſand. Though none of them appear in females, they are found in the ſemen of all males, both in the teſticles, and in the veſiculae ſeminales. When ſemen is expoſed to a moderate heat, it thickens, and the movements of all the animalcules are ſuddenly ſtopped. But, when allowed to cool, it dilutes, and the animalcules continue to move till the liquor again thickens by evaporation. In proportion to the dilution of this fluid, the number of animalcules is augmented; and, when greatly diluted by the addition of water, the whole ſubſtance of the fluid ſeems to be compoſed of animals. When, by heat, or by drying, the motion of the animalcules is about to ceaſe, they ſeem to make a nearer approach to each other, to have a common circular motion in the centre of the ſmall drop under obſervation, and to periſh, all of them, at the ſame inſtant. But, when the quantity of liquor is greater, it is eaſy to perceive them dying in ſucceſſion. Theſe animalcules have been ſaid to be of different figures; but they are all oblong, thin, without any members, and move with rapidity in every direction.

Having

Having examined the ſemen of a cock, Leuwenhoek perceived a number of animals ſimilar to river eels, which were ſo minute, that 50,000 of them were not equal in bulk to a grain of ſand. Of the animalcules in the ſemen of a rat, it required, he ſays, many millions to make the thickneſs of a hair. Leuwenhoek, from his numerous obſervations, was perſuaded that the whole ſubſtance of the ſemen was only a congeries of animalcules. He ſaw theſe animalcules in the ſemen of men, of quadrupeds, of birds, of fiſhes, and of inſects. In the ſemen of a man and that of a dog, he imagined he ſaw two ſpecies of animalcules, reſembling males and females. He opened a bitch which, ſome time before the experiment, had three times received the ſame dog. He could not perceive, with the naked eye, any male ſemen in the uterus or its appendages; but, by the aid of the microſcope, he found the ſpermatic animals of the dog in both horns of the uterus; which evidently proves, he remarks, that the male ſemen enters the uterus, or, at leaſt, that the ſpermatic animals of the dog had arrived there by their own motion, which enables them to paſs over the ſpace of four or five inches in half an hour.

Theſe and many other experiments of Leuwenhoek were repeated by ſeveral obſervers, who found them, in general, exactly conſonant to truth. Daleppatius, however, and ſome others, who were inclined to exceed Leuwenhoek in acuteneſs of viſion, alleged that, in the ſemen of a man, they diſcovered not only animals reſembling tadpoles, but Daleppatius inſiſts, that he ſaw one of theſe animals break through its coat or covering: It was then, ſays he, no longer an animalcule, but a real human body, in which he eaſily diſtinguiſhed the two arms and legs, the breaſt and the head. Daleppatius believed that he ſaw what he deſcribes; but he deceived himſelf; for this

this embryo, according to his account, was more completely formed, at the time of its tranſmigration from the ſtate of a ſpermatic worm, than it is in the womb of the mother at the end of the fourth or fifth week.

It is alleged by M. Andry, that he could diſcover no animalcules in human ſemen previous to the age of puberty; that they exiſt not in the ſemen of very old men; that there are few of them in thoſe who are affected with the venereal diſeaſe, and that thoſe few are in a languiſhing ſtate; that none of them appear to be alive in impotent perſons; and that the animalcules in the ſemen of men have a larger head than thoſe of other animals, which correſponds, he remarks, with the figure of the foetus and infant.

Leuwenhoek, Andry, and many others, exerted every effort to diſcredit the egg-ſyſtem. They diſcovered living animalcules in the ſemen of all males; they inſiſted that theſe animalcules could not be conſidered ſimply as inhabitants of this fluid, ſince the quantity of them was larger than that of the fluid itſelf, and ſince nothing ſimilar to them was to be perceived either in the blood, or in any other of the animal fluids: They maintained, that, as females furniſhed no animalcules, their fecundity was ſolely derived from the males; that the exiſtence of living animals in the ſemen threw more light upon the nature of generation than all the former diſcoveries on this intereſting ſubject; becauſe the greateſt difficulty in accounting for generation is to conceive how life is firſt produced, the future expanſion and growth of the parts being only acceſſory operations; and, conſequently, not a doubt could remain, that theſe animalcules are deſtined by Nature to become men, or perfect animals, according to the ſpecies.

It was not the firſt woman, according to this ſyſtem, but the firſt man, who contained the germs of the whole human race in his own body. The pre-exiſtent germs are no longer inanimate embryos locked up in eggs, and included, *in infinitum*, within each other. On the contrary, they are ſmall animals, or organized living *homunculi*, included in each other in endleſs ſucceſſion, and who, to make them men, or perfect animals, require nothing but expanſion of parts, and a transformation ſimilar to that of caterpillars when changed into winged inſects.

We have now pretty fully explained the two more modern ſyſtems, or rather theories, of the generation of animals, namely, the ſyſtem of eggs, and that of ſpermatic worms.

Neither of theſe ſyſtems received the aſſent of the celebrated COUNT DE BUFFON. Both ſyſtems, he remarks, ſuppoſe an infinite progreſſion, which is a mere illuſion of the brain. A ſpermatic worm, ſays he, is a thouſand million of times ſmaller than a man. If, therefore, the body of a man be aſſumed as a unit, that of a ſpermatic worm will be expreſſed by the fraction $\frac{1}{1,000,000,000}$, a number which conſiſts of ten cyphers. But, as man is to a ſpermatic worm of the firſt generation in the ſame proportion as this worm is to a worm of the ſecond generation, the ſize of this laſt ſpermatic worm will be expreſſed by a number conſiſting of nineteen figures. In this fanciful calculation, he proceeds to the ſixth generation, which would require to be expreſſed by fifty-five cyphers. But, if this calculation, he continues, were carried on to the ſixteenth generation, the minuteneſs would exceed all the powers of expreſſion. Hence, he concludes, the probability of this hypotheſis vaniſhes in proportion as the object diminiſhes. The ſame calculation applies equally

equally to eggs as to ſpermatic worms; and the want of probability is common to both. Every hypotheſis which admits of an infinite progreſſion ought to be rejected not only as falſe, but as deſtitute of every veſtige of probability; and, as both the vermicular and ovular ſyſtems ſuppoſe an infinite progreſſion, they ſhould be for ever baniſhed from philoſophical ſpeculation, as well as from phyſiological diſcuſſion. Theſe ſyſtems, he proceeds, are liable to another objection. In the ovular ſyſtem, the firſt woman contained both male and female eggs. The male eggs could produce males only. But the female eggs muſt have contained millions of generations both of males and females. Hence every woman muſt have always poſſeſſed a certain number of eggs capable of being unfolded *in infinitum*, and another number, which could be unfolded once only, and could have no farther operation in the ſeries of exiſtence. The ſame obſervations are applicable to the vermicular ſyſtem. Hence, he concludes, that there is not the ſmalleſt degree of probability in either hypotheſis.

Another difficulty, continues our author, ſtill remains. It ariſes from the reſemblance of children ſometimes to the father, ſometimes to the mother, and ſometimes to both, and from the evident mongrel characters diſcoverable in mules and other irregular productions. If the foetus originates from the ſpermatic worm of the father, how ſhould the child reſemble its mother? If the foetus pre-exiſts in the egg of the mother, how ſhould the child reſemble its father? And, if the ſpermatic worm of a horſe, or the egg of a ſhe-aſs, be the origin of the foetus, how ſhould the mule partake of the nature and figure of both the horſe and aſs?

The objections, our author continues, to the ovular ſyſtem are not leſs important. If the foetus exiſted in the egg previous to inter-

courſe of the male and female, why is not the foetus ſeen in the egg previous to impregnation as diſtinctly as after it? Malpighius always found the foetus in eggs which had received impregnation, and, in unimpregnated eggs, he could diſcover nothing in the cicatrice but an unformed mole or maſs. It is evident, therefore, that the foetus is never formed till the egg has been impregnated. Beſides, we not only cannot diſcover the foetus in eggs before the intercourſe of the ſexes, but we have not been able to demonſtrate the exiſtence of eggs in viviparous animals. Thoſe naturaliſts who imagine that the ſpermatic worm is a foetus incloſed in a coat, or covering, are at leaſt aſcertained of the exiſtence of ſpermatic worms. But thoſe who maintain that the foetus pre-exiſts in the egg, have no evidence of the exiſtence of the egg itſelf; for the probability of their non-exiſtence in viviparous animals amounts almoſt to a certainty. Though the ſupporters of the ovular ſyſtem agree not as to what ought to be regarded as real eggs in female teſticles, they all admit, however, that impregnation is accompliſhed in the teſticles or ovaria. But they do not conſider, that, if this really happened, moſt foetuſes would be lodged in the abdomen, inſtead of the uterus? for, the ſuperior extremity of the Fallopian tube being unconnected with the ovarium, the ſuppoſed eggs would generally fall into the abdomen. This is well known to be a very rare phenomenon; and it is probable that it never happens but by ſome violent accident.

M. Mery, in the hiſtory of the Academy of Sciences, ſtated ſome objections to the egg-ſyſtem of generation. This dextrous anatomiſt inſiſts, with much propriety, that the veſicles found in the teſticles of females are not eggs; that they adhere ſo firmly to the internal ſurface of the teſticle, as not to admit of a natural ſeparation; and that, though they could ſeparate from the ſubſtance of the

the teſticle, it was impoſſible for them to eſcape from it, becauſe the texture of the common membrane which incloſes the whole teſticle is ſo ſtrong, that no man can conceive the poſſibility of its being pierced by a veſicle or gelatinous egg. As moſt anatomiſts and phyſicians were prepoſſeſſed in favour of the egg-ſyſtem, and imagined that the number of cicatrices in the ovaria correſponded with the number of foetuſes, M. Mery demonſtrated ſuch a quantity of theſe cicatrices in the teſticles of a woman, as, upon the ſuppoſition of the truth of this ſyſtem, would have implied a fecundity beyond all the powers of credibility. Other anatomiſts of the Academy, ſtimulated by theſe difficulties, made new reſearches. M. Duverney examined the teſticles of cows and ſheep, and maintained, that the veſicles were eggs, becauſe ſome of them adhered to the teſticles leſs firmly than others; and he ſuppoſed that they ſeparated entirely when they arrived at maturity. M. Mery replied, that this reaſoning was not ſatisfactory, becauſe theſe veſicles were never ſeen ſeparate from the teſticles. M. Duverney obſerved the glandular bodies upon the teſticles. He, however, never regarded them as parts eſſential to generation, but as accidental excreſcences, like gall-nuts on the leaves of the oak. M. Littre, whoſe prejudices were equally ſtrong in favour of the egg-ſyſtem, maintains, not only that the veſicles are eggs, but aſſures us, that he diſcovered in one of them a well-formed foetus, of which he could diſtinguiſh both the head and the trunk; and he has even ventured to give their dimenſions. From his own deſcription, however, it appears that the uterus was ſchirrous, that the teſticle was very much corrupted; and that the veſicle, or egg, which contained this pretended foetus, was ſmaller than uſual, &c.

We are told by Nuck, that he opened a bitch three days after copulation; that he drew out one of the horns of the uterus, and tied

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it in the middle, to prevent all communication with the ſuperior and inferior parts of the Fallopian tube. He then replaced the horn of the uterus, and cloſed the wound. In twenty-four days afterwards, he again opened the wound, and found two foetuſes in the ſuperior part of the tube, that is, between the teſticles and the ligature; and no foetus was to be ſeen in the under part. In the other horn of the uterus, upon which there was no ligature, he found three foetuſes. This fact proves, ſays he, that the foetus does not originate from the male ſemen, but that it exiſts in the egg of the female. This experiment is ſingle; but, though it had been often repeated, and followed with the ſame event, the concluſion drawn from it is illegitimate. It proves no more than that a foetus may be formed in the ſuperior as well as in the inferior part of the horn of the uterus.

I have now laid before the reader a ſhort hiſtorical account of the theories and obſervations of the moſt reſpectable authors, both antient and more modern, who have written upon the important, but obſcure ſubject of the multiplication and ſucceſſion of animated beings. I ſhall, therefore, proceed to give the ideas of ſome of our contemporaries.

§ 9.—BUFFON'S experiments and reaſonings on the nature of generation merit attention. They are ingenious; but the reader muſt judge of their ſolidity. He alleges that all animals and vegetables are compoſed of an infinite aſſemblage of germs or organic living particles, which require only to be placed in certain circumſtances in order to produce an animal or vegetable of the ſame ſpecies. Theſe germs, or organic living corpuſcles, are all of a ſimilar figure and nature. In the ſame manner, ſalts, and ſome other mineral ſubſtances, are compoſed. A grain of ſea-ſalt is a cube conſiſting of an infinite

number

number of ſmaller cubes, and theſe ſtill more minute, till, perhaps, we arrive at the primitive or conſtituent elements, which no glaſſes, nor any other human invention, can ever bring within the reach of our ſenſes. In the univerſe, our author remarks, the number of theſe living organized corpuſcles is infinite. Their conſtitutional ſubſtance is preciſely the ſame with that of thoſe organized bodies we ſee in Nature. For example, there is a vaſt profuſion of organic corpuſcles ſimilar to the animals with which we are acquainted. A combination of theſe forms an animal, in the ſame manner as a combination of ſmall cubes forms a grain of ſalt, or the combination of a number of vegetable corpuſcles produce a tree or a plant. But it is neceſſary to break down, or diſſolve, a grain of ſalt before we can diſcover the corpuſcles of which it is compoſed. The parts of a plant, or of an animal muſt, in the ſame manner, be ſeparated, in order to diſcover, by means of vegetation or developement, the ſmall particles which enter into their compoſition. Every animal and vegetable ſubſtance is only a congeries of ſmaller animals and vegetables, though we are unable to make the diviſion. Hence, our author remarks, there exiſts in Nature multitudes of minute organized bodies ſimilar to the large organic beings which are exhibited in the world. Theſe ſmall beings, again, are compoſed of organic particles, which are common to animal and vegetable ſubſtances, give riſe to every part of organic matter, and are primitive and indiſtructible. An aſſemblage of theſe particles forms an organized body. Hence generation, or reproduction, is only a change of form occaſioned by the accumulation of ſimilar particles; and death, or diſſolution, is only a diviſion of this compound into its original and conſtituent parts.

In this manner, continues our author, ſeeds produce young trees, which formerly exiſted in miniature in their own ſubſtance. During the

the firſt year, at the top of the ſtems or trunks of trees, a ſmall bud appears, which contains a ſtem to be unfolded in the ſecond year. The ſame proceſs goes on annually with regard to the branches and leaves. Hence, he concludes, that the whole plant is an aſſemblage of ſimilar organic bodies. The more perfect and the more complex animals are, their reproduction is the more difficult, and their progeny the leſs numerous. During the growth of the body, all the organic particles extracted from food are totally abſorbed, and applied to augment the parts. For this reaſon, children are incapable of multiplying their ſpecies. But, when growth is nearly completed, the ſuperfluous molecules, or organic particles, are tranſmitted from all parts of the body to the teſticles and ſeminal veſſels, the reſervoirs appointed for them by Nature. At this period, the ſymptoms of puberty firſt begin to appear. Theſe particles, our author remarks, do not unite in the teſtes to form embryos. To accompliſh this effect, a mixture of thoſe belonging both to the male and female is indiſpenſable for the purpoſes of generation. When there are more male than female organic particles, the reſult is a male, and *vice verſa*. What determines theſe organic particles to come from all parts of the body, and to rendezvous in the teſtes? M. de Buffon anſwers, becauſe the organic particles are no longer able to penetrate the parts themſelves; they are rejected, and, of courſe, unite together by the ſame active force which formerly gave them the power of penetrating the different members of the body when in a more flaccid and ductile ſtate. In the courſe of circulation, every part attracts the particles which are moſt analogous to itſelf. After growth is completed, all the parts become more denſe; and, though the blood, as uſual, makes them an offer of organic particles, they are incapable of receiving them. The organic particles, therefore, being rejected by theſe parts of the body which formerly abſorbed them with

with avidity, are obliged to aſſemble in the teſtes, which are reſervoirs prepared by Nature for their reception.

Buffon made a great variety of experiments on the ſemen of different animals, which he diligently examined with the microſcope. The moving bodies in the ſemen, which Leuwenhoek, and indeed every man who choſe to view them, concluded to be animalcules, Buffon, in order, it ſhould appear, to deſtroy the homuncular ſyſtem, and to eſtabliſh a new one of his own, denies to be *animals*. He gives them, however, the appellation of *corps organiques vivans*, or *living organic bodies*. This may be a *diſtinction*; but we ſhall leave the reader to find out the *difference*. From theſe experiments our ingenious author reaſons in the following manner.

All animals, he remarks, are nouriſhed either by vegetable ſubſtances, or by other animals who feed upon vegetables. Hence there exiſts in Nature a matter common to both, which ſerves for the growth and nouriſhment of every thing that lives or vegetates. This matter effectuates growth and nouriſhment by aſſimilating itſelf to every part of the animal or vegetable, and by intimately penetrating the texture and *form* of theſe parts, which, ſays he, I have diſtinguiſhed by the appellation of an *internal mould*. When the quantity of this nutritive matter is more than ſufficient for the growth and expanſion of the animal or vegetable, it is detached from all parts of the body, and depoſited in one or ſeveral reſervoirs, under the form of a fluid. This fluid contains all thoſe particles which are analogous to the various parts of the body, and, of courſe, every thing neceſſary for the production, in miniature, of a being perfectly ſimilar to the firſt. This ſuperfluity of nutritive matter

does not take place, in moſt animals, till they have nearly acquired their full growth; for this reaſon, animals are not capable of multiplying their ſpecies before this period. When this nutritive and prolific matter, which is diffuſed through all nature, paſſes through the internal mould of an animal or vegetable, and finds a proper matrix or receptacle, it gives riſe to an animal or vegetable of the ſame ſpecies. But, continues our author, when this prolific matter does not find a proper matrix, it produces organized beings totally different from *animals* or *vegetables*, as the *moving* and *vegetating* bodies which appear in the ſeminal fluids of animals, and in the infuſions of vegetable ſubſtances *. If this reaſoning is not *abſurd*, I know not the meaning of the *word*. This prolific matter is compoſed of organic particles, which are always active. Their motions are ſtopped or arreſted by the brute parts of matter in general, and particularly by ſaline and oily ſubſtances; but, whenever they are diſengaged from theſe ſubſtances, they reſume their activity and produce different ſpecies of animals and vegetables. The ſpermatic animals may be ſeen, by the aſſiſtance of the microſcope, in the ſeminal fluids of both male and female animals. The ſemen of viviparous females is filtrated through the glandular bodies which grow upon their teſticles; and theſe glandular bodies contain, in their cavities, a conſiderable quantity of ſeminal fluid. Oviparous females have a ſeminal fluid which is ſtill more active than that of the viviparous. The ſemen of the female is ſimilar to that of the male. They decompoſe in the ſame manner; they contain ſimilar organic particles; and they exhibit the ſame appearances.

Of this organic and prolific matter, all animal and vegetable ſubſtances contain a great quantity. To diſcover its exiſtence, we have only

* Tranſ. of Buff. Vol. II. p. 347.

only to ſeparate it from the brute matter in which it is entangled, by infuſing animal or vegetable ſubſtances in water: The ſalts diſſolve; the oils ſeparate; and the organic particles are perceived by their movements. They are more numerous and active in the ſemen, than in any other animal fluids. After fleſh has been infuſed for a ſhort time in water, the organic matter appears under the form of moving bodies, which are nearly as large as thoſe in the ſeminal fluid. But, after the infuſion has been longer continued, the ſize of the organic particles is diminiſhed, and their motion is augmented; and, when the fleſh is entirely decompoſed or corrupted, the organic particles are extremely minute, and their motions are inconceivably rapid. When large quantities of this organic and prolific matter are collected in any part of an animal body where the matter is forced to remain, it there forms *living beings*, which we have always regarded as *real animals!* The taenia, the aſcarides, all the worms found in the veins, in the liver, in wounds, in pus, and moſt of thoſe which are formed in putrified fleſh, have no other origin. The eels in paſte, in vinegar, and all the pretended, our author obſerves, microſcopic animals, are only different forms aſſumed, according to circumſtances, by this active matter, which has a perpetual tendency to organization.

In infuſions of all animal and vegetable ſubſtances, this prolific matter firſt appears under the form of a kind of vegetation. We ſee it ſhoot into filaments, which grow and expand like plants. Their extremities and joints afterwards ſwell and burſt, to give paſſage to a multitude of moving bodies, which have ſome reſemblance to animals. Nature, it ſhould appear, commences all her operations by a kind of vegetable motion: This motion we perceive in a variety of microſcopic objects, and in the expanſion of the animal em-

bryo; for, at firſt, a fœtus poſſeſſes only a ſpecies of vegetable growth or motion. Sound food furniſhes none of theſe moving particles: Freſh meat, grain, fruits, &c. require to be infuſed ſome days before they exhibit any of theſe moving bodies. The more any ſubſtance is corrupted, decompoſed, or exalted, as pus, blighted grain, ſeminal fluids, &c. the moving bodies the ſooner make their appearance. In ſeminal fluids, they are entirely diſengaged from other matter; and a few hours infuſion only is neceſſary to diſcover them in pus, corrupted grain, ſtrong drugs, &c.

From theſe and ſimilar facts, our author infers the exiſtence of an organic animated matter, univerſally diffuſed through all animal and vegetable ſubſtances, and which equally ſerves for their nouriſhment, their growth, and their reproduction. Nutrition, he ſays, is effected by the intimate penetration of this matter through every part of animal and vegetable bodies; expanſion, or growth, is only a more extenſive ſpecies of nutrition, which proceeds as long as the parts are ductile, and capable of being ſtretched; and reproduction is an effect of the ſame matter, when it ſuperabounds in the body of an animal or vegetable. Every part of organized bodies ſends off to proper reſervoirs all the organic particles which are ſuperfluous for its nouriſhment. Theſe particles are perfectly ſimilar to the different parts from which they proceed, becauſe they were deſtined for the nouriſhment of thoſe parts. When the whole particles ſent off from every part of the body are aſſembled, they muſt neceſſarily form a ſmall body ſimilar to the original, becauſe every particle is ſimilar to the part from which it was detached. In this manner, every ſpecies of reproduction, where one individual only is requiſite, as that of trees, plants, polypi, vine-fretters, &c. is effected. This is alſo the firſt method employed by Nature for the reproduc-

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tion of ſuch animals as require the aid of different ſexes; for the ſeminal fluid of each ſex contains all the particles neceſſary for reproduction: But, among the larger animals, the mixture of both fluids, in a place ſuited to the expanſion and growth of the fœtus, is requiſite; and this place is the uterus of the female.

After reaſoning in this manner, from the facts enumerated by him, M. de Buffon draws the following concluſions: There are, therefore, ſays he, no pre-exiſting germs, or germs contained infinitely within each other. But there is an organic matter diffuſed through all animated nature, which is always active, and has a perpetual tendency to form, to aſſimilate, and to produce beings ſimilar to thoſe into which it enters. Hence the ſpecies of animals and of vegetables can never be exhauſted: As long as individuals ſubſiſt, the different ſpecies will be conſtantly kept up; they are the ſame now that they were three thouſand years ago. By their own powers they will perpetually exiſt, unleſs they be annihilated by the will of their Great CREATOR.

§ 10.—We ſhall now proceed to the theory of the ingenious C. BONNET. In his *Conſiderations ſur les Corps Organiſes*, Bonnet ſuppoſes that germs, or buds, exiſt in the uterus of the female, and contain the matter or rudiments of the fœtus; and that the impregnation of the male has no other effect than that of putting theſe germs in a condition proper for their evolution and growth. The animalcular ſyſtem, our author remarks, makes the germs, or rudiments of animals, reſide in the ſpermatic animalcules, and the uterus affords only a convenient nidus for beſtowing the warmth and nouriſhment neceſſary for the evolution of the parts. The exiſtence

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of theſe animalcules in females ſeems to deſtroy this hypotheſis, unleſs it ſhould be ſuppoſed that they copulate and produce a third being, which becomes the rudiments of a fœtus, or that they unite in numbers to compoſe a large homogeneous maſs. The farina of plants, and the ſemen of animals, are the nutritive particles deſtined by Nature for the growth and evolution of the original germs. Bonnet ſuppoſes that the germs, whether male, female, or neuter, as in bees, exiſt previouſly in the ovaria of the mother, and that the male ſemen only cheriſhes and unfolds what formly exiſted.

Bonnet endeavours to obviate ſome difficulties to which his theory gives riſe. For example, why ſhould mules reſemble both ſpecies from which they proceed? Theſe reſemblances, he obſerves, are ſeldom uniform, or take place in the ſame parts. It has, however, been remarked, that, in general, the body of a mule reſembles the female more than the male; but that the extremities have a greater reſemblance to thoſe of the male. On this branch of the ſubject, he confines himſelf chiefly to reſemblances in colour, which, he thinks, are eaſily accounted for by regarding the ſemen as a nutritious fluid. We know, ſays he, that the quality of the aliment has a great influence on the colour of organized bodies. By feeding on madder, the bones of fowls, and of other animals, are ſoon changed into a red colour. We can vary the ſhades of plants by making them abſorb different fluids of different colours.

But, he proceeds, it may be ſaid, that the colours impreſſed on the germ by the ſeminal fluid ſhould alter gradually, and at laſt vaniſh entirely. To remove this difficulty, our author replies, that the reflection of particular colours depends on the nature and texture of the parts; when theſe are determined, it is very probable that

that the colours remain, and that the nutritious particles conveyed to theſe parts receive the ſame tinges. A germ he defines to be the rudiment or ſketch of an organized body. This idea, he confeſſes, is not ſufficiently clear. But, he remarks, that we muſt either attempt a mechanical explanation of the mode in which organs are formed, which exceeds all human powers, or we muſt admit that the germ actually contains in miniature all the parts eſſential to the animal. The principal difference, then, between a germ and a real animal is, that the germ is compoſed ſolely of elementary particles, and that the texture formed by theſe particles is extremely condenſed; but that, in the animal, the elementary particles, by means of nutrition, are aſſociated with an infinity of other particles. The variety which takes place in all parts of animals, whether with regard to their proportions or conſiſtence, ſhows that the ſame variety exiſts in the elements from which they originated. The degree of extenſion in the different parts is proportioned to the power by which they were produced. This power, in the preſent ſubject, is the ſeminal or nouriſhing fluid.

To theſe general reflections, our author proceeds, I ſhall add ſome particular conjectures. 1. I ſuppoſe, ſays he, that, in the ſeminal fluid, the ſame ſpecies of elements exiſt as enter into the compoſition of the germ. 2. That elements of the ſame kind have a greater diſpoſition to union, than thoſe of a different nature. 3. That the texture, or tiſſue, of each part bears a certain proportion to the relative particles of the ſemen. 4. That the efficacy of the ſeminal liquor depends on the degree of its heat and motion, and on the number of the different kinds of elementary particles it contains. Upon theſe ſuppoſed principles, he remarks, the generation of mules by the junction of the aſs and mare may, in a certain degree,

gree, be explained. This production, ſays he, formerly exiſted in the ovaria of the mare under the form of a horſe. But how ſhould this horſe undergo ſuch a change? From whence proceed theſe long ears? Why is the tail furniſhed ſo ſcantily with hair? To theſe queſtions, he replies, that, though the elements of the ſeminal fluid of the aſs correſpond, in general, with thoſe of the germ, it contains a proportionally greater number of particles ſuited to unfold the ears. On the other hand, it has fewer particles neceſſary for expanding the tail.

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SECT. III.

Of Singularities in the Mode of Multiplying among certain Animals.

IN the firſt volume of this work, I have enumerated ſo many examples of the multiplication of animals, without the intervention of two ſexes, which, though ſtrictly connected with this ſubject, it is unneceſſary to repeat; and, therefore, muſt refer the reader to a peruſal of that part of the book where thoſe examples are to be found *.

* Phil. of Nat. Hiſt. Vol. I. p. 30. &c.

SECT. IV.

Of Partial Reproduction—Some Animals, from peculiarities in their conſtitutions, have the power of reproducing parts of their bodies which have been lopped off—Suppoſed cauſes of this ſurpriſing faculty.

IN the more perfect animals, as man, quadrupeds, birds, &c. whoſe multiplication is regulated by general and ſimilar laws. if any member or part of their bodies is deſtroyed, it is impoſſible, it ſhould appear, for either art, or Nature herſelf, to repair the loſs. But, in ſome inferior animals, whoſe texture is more ductile, though deprived, by force or by accident, of particular members of their bodies, their conſtitutions have the power of reproducing the loſt parts, and of reſtoring them to their originally perfect ſtate; and, in ſome inſtances, when the body of an animal is divided, it gives riſe to as many individuals as there are diviſions, as in the polypus, &c.

The earth-worm, when cut into two or more portions, does not die. On the contrary, when the different portions are placed in proper circumſtances, each of them gradually becomes a perfect animal. BONNET informs us, that he cut a worm of this kind into two equal parts on the 27th day of July; and that, on the 15th of Auguſt, he perceived, at the poſterior part of the inſect to which the

head was attached, a ſlender vermicular appendage, about eight or nine lines in length. Its colour was brighter than the reſt of the body. It had the appearance of a ſmall worm proceeding from the extremity of the larger. This appendage, or rather this new poſterior part, was highly organized. It was compoſed of a ſucceſſion of very cloſe rings, upon the ſides of which the *ſtigmata*, or apertures deſtined for the purpoſes of reſpiration, were perceptible. What was ſtill more curious, the great artery, or that veſſel which, in inſects, performs the functions of the heart, was apparent. In this artery, from the one extremity of it to the other, the alternate motions, called *ſyſtole* and *diaſtole*, were perfectly evident. The circulation of the blood in this new production, in the ſame manner as in the reſt of the body, proceeded from the poſterior to the anterior extremity. In earth-worms, the blood is of a fine red colour, which gave M. BONNET an opportunity of diſtinguiſhing eaſily its motion and direction. At the end of a month and a half, from the operation, this new poſterior part, which at firſt was ſo ſlender, had acquired a thickneſs almoſt equal to that of the reſt of the body, and it had grown proportionally in length. Its colour was deeper, and the new inteſtines were full of earth, which is the food of that ſpecies of inſects. After what I have related, ſays BONNET, it muſt be acknowledged, that the earth-worm has the faculty of reproducing parts of its body after they have been cut off. The poſterior part, though lively and active at the end of nine months, ſhowed no ſymptoms of reproduction. After ſo long an abſtinence, it at laſt periſhed for want of food.

With a view to obſerve more particularly the reproduction of the anterior part, BONNET cut from an earth-worm the head and ſeveral rings. This experiment was begun about the end of July. To-

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ward the middle of August, the wound was perfectly cicatrised; but no marks of reproduction appeared. The wound was circumscribed by a pretty elevated border formed by the old flesh, and made a kind of hollow in the middle resembling a small bason. In a few days more, he observed, in the centre of this depression, a white point, which, by gradually increasing, assumed the form of a small bud. On the twentieth day of September, this bud was lengthened, and terminated in a soft point. On the second day of October, it was still longer, and had assumed the appearance of a small worm, which issued from the middle of the cicatrice. In the months of November and December, the new part continued to lengthen, and to grow proportionally thick. The death of the insect put an end to farther observations. BONNET remarked similar appearances in earth-worms which had been divided into three, four, and five portions. From the intermediate portions, both an anterior and posterior part began to shoot at the same time. But the progress of the former, in equal times, was much greater than that of the latter. When the posterior part had acquired three lines in length, the anterior part appeared only under the form of a small bud; and, when the anterior part was between two and three lines long, the posterior was at least six lines, or half an inch. All these sections of worms, however, died without reproducing a complete anterior part.

BONNET made similar experiments on certain species of worms which live in fresh waters. They afford an example of a much more rapid reproduction than can be obtained from the earth-worm. Sections of these worms, in a few days, become complete animals. The anterior part ceases to grow as soon as it has acquired the length of a line, or a line and a half. The posterior part, on the contrary, sometimes stretches out to the length of several inches. Portions,

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even cut from the middle of the body, reproduce a new head and a new tail. Another ſpecies of freſh-water worm is of a whitiſh or aſh colour. It is remarkable, that, when BONNET cut tranſverſely the body of this worm into two or ſeveral portions, each portion, at its anterior extremity, reproduced a tail inſtead of a head. This tail, as might be ſuſpected, was not a head more than commonly ſlender. It was a well-formed tail, in which the anus was diſtinctly viſible. This reproduced part, the worm did not uſe either for the purpoſes of moving or of taking food. It only made vibrations occaſionally from right to left, but without the ſmalleſt attempt to progreſſive motion. It is remarkable, that in this tail, inſtead of a head, the circulation of the blood did not change its direction, but continued, as uſual, to move from the poſterior to the anterior part of the body. It is ſtill more remarkable, that the ſections of theſe worms, which reproduce a tail inſtead of a head, never receive any nouriſhment. Their ſtomach and inteſtines, though the anomalous creatures ſometimes lived ſeven months, were always tranſparent, and never contained any food.

But theſe inſtances of reproduction are confined to very ſmall animals. I now give an example of regeneration of parts lopped off in an animal prodigiouſly large, when compared with the polypus, or the freſh-water worms, formerly deſcribed.

Long before the hiſtory of the polypus was known, philoſophers admired the reproduction of the claws of the cray-fiſh, a ſpecies of lobſter. But no perſon has traced the progreſs and circumſtances attending this reproduction with equal exactneſs and ſagacity as the celebrated M. DE REAUMUR *.

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* Mem. de l'Acad. Royale des Sciences, anno 1712.

The claws of the cray-fiſh, reckoning from the end of the pincher, conſiſt of five articulations, at the fourth of which the claw breaks moſt frequently, and here it is alſo moſt eaſily reproduced. When the claw, whether by accident or deſign, has been broken at or near this articulation, the part which remains attached to the body exhibits a round ſhelly opening or tube. This tube is occupied entirely with a fleſhy ſubſtance. In a day or two, eſpecially if the experiment is made in ſummer, a red membrane, like a piece of cloth, ſhuts up the aperture. This membrane is at firſt plain; but, in four or five days, it aſſumes a convexity, which gradually augments, till it takes the appearance of a ſmall cone, which exceeds not a line in height. It continues, however, to ſtretch out; and, in ten days, it is ſometimes more than three lines, or about a quarter of an inch, high. It is not hollow, but filled with fleſh, and this fleſh is the baſis or rudiments of a new claw. The membrane which covers the fleſh performs the ſame office to the young claw as the membranes do to the foetus of the larger animals. It extends in proportion as the animal grows; and, as it is pretty thick, we can perceive nothing but a lengthened cone. When fifteen days are elapſed, this cone inclines toward the head of the animal. In a few days more, its curvature increaſes, and it begins to aſſume the appearance of a dead claw. This claw, though, at the end of a month or five weeks, it has acquired the length of ſix or ſeven lines, which is more than half an inch, is ſtill incapable of action. The membrane in which it is incloſed becoming gradually thinner in proportion as it extends, gives an opportunity of obſerving the parts of the claw, and we now perceive that this conical ſubſtance is not a ſimple congeries of fleſh. The moment is now arrived when the claw begins to be brought forth. The membrane at laſt burſts, and the new claw, though ſtill ſoft, appears without incumbrance or inveſtment. In a few days more,

more, it is covered with a ſhell, and, though ſtill delicate, and not the half of its former length, it performed all its natural functions. It has likewiſe been diſcovered, that, whether the claw has been lopped off at the fourth articulation, or any where elſe, the animal, in a ſhort time, recovers all that it had loſt. The ſame reproduction takes place in the claws and in the horns; but, what is ſingular, if the tail is cut off, the animal ſurvives a few days only.

To account for theſe and ſimilar reproductions, BONNET has recourſe to his favourite hypotheſis of pre-exiſting germs. When the claws of the cray-fiſh, or the parts of certain inſects, are cut off from their bodies, he ſays, that the germs or buds of theſe parts ſtill remain, and require nothing but time and proper circumſtances to unfold and to reſtore the parts which had been loſt.

BONNET's theory is ingenious, and his knowledge of Nature is extenſive. Still, however, I am afraid, that, notwithſtanding his great talents and induſtry, he has related the facts only, without being able to aſcertain, or to explain in a ſatisfactory manner, the cauſes by which they are produced. An infinite ſeries of germs, all capable of either giving riſe to entire animals, or of reſtoring the loſt parts of animals, ſeems to be an incomprehenſible idea, and adds nothing to our knowledge of the operations of Nature. How ſhe acts, in theſe and ſimilar circumſtances, we never, it ſhould appear, can either diſcover or comprehend.

SECT.

SECT. V.

General Reflections and Obſervations.—Suppoſed Effects of the Imagination upon pregnant Animals.

I HAVE now given an hiſtorical account of this moſt intricate ſubject, which has occupied the attention of great and learned men both in antient times and in our own. Before concluding, I muſt, however, be indulged with a few remarks.

The mode employed by Nature for multiplying animals, by the commixture of ſexes, though inveſtigated with anxiety by ingenious men for many ages, is ſtill, and muſt for ever remain a myſtery. I ſhall not diſturb my readers with particular remarks upon the various theories of which I have given abridged, but, I hope, ſatisfactory views. Much muſt be left to their own reflection. It may, however, be obſerved, upon the whole, that great labour and great ingenuity have been exerted in order to elucidate a ſubject ſo intereſting, and ſo calculated to excite the curioſity of beings endowed with any conſiderable portion of rational powers.

The moſt plauſible theories are thoſe of HARVEY, LEUWENHOEK, and BUFFON.

HARVEY's idea of eggs is ingenious, and founded on a ſtrong analogy. But the facts he produces ſeem not ſufficient to ſupport the hypotheſis he has adopted. If we reflect on oviparous animals, from the humming-bird to the largeſt of the feathered tribes, we ſhall perceive that the eggs bear ſome proportion to the magnitude of the animal which gives birth to them. But in man and the larger quadrupeds, what HARVEY, and many other writers of reputation, have choſen to denominate *eggs* in their ovaria, are almoſt infinitely diſproportioned, by their minuteneſs, to the magnitude of the animals which are ſuppoſed to proceed from them. An elephant, or even a human being, produced from an *egg* not ſo large as a *pea*, requires a degree of faith that few men poſſeſs. Here the analogy between real oviparous animals and the larger quadrupeds ſeems too diſtant, and even too ridiculous, to obtain general credit. Beſides, how is this egg, after impregnation, to enter the Fallopian tube, and be, through this channel, conveyed into the uterus? The Fallopian tubes have no immediate connection with the ovaria. But we are told, that, in the moment of impregnation, the *fimbriae*, or fringed mouths, of the Fallopian tubes, embrace the ovaria, ſwallow an egg, and tranſmit it to the uterus, where it is cheriſhed, hatches, and, in proper time, produces a living animal! Whoever is capable, after conſidering the ſtructure of the parts, of believing this ſtrange proceſs, ſeems to have more faith than is neceſſary to conſtitute a good Muſſelman.

LEUWENHOEK's vermicular theory is ſtill more complicated, and leſs intelligible. That animalcules, or moving bodies, really appear, by the aſſiſtance of the microſcope, in the ſemen of animals, is an inconteſtible fact. But our author conſiders theſe moving bodies as real animals, according to the ſpecies, which require only a proper

nidus

nidus for their growth and perfection of their parts. LEUWENHOEK ſuppoſes that, when one of theſe animalcules gets admittance to the uterus, its parts, which formerly exiſted, are gradually unfolded till at laſt it becomes an animal completely fitted to ſee the light, and to perform the various functions of life. He tells us, that, in the ſemen of ſome ſpecies, millions of animalcules are not equal in bulk to a grain of ſand, and that, in others, many millions of them would not make the thickneſs of a hair. In the ſeeds of plants, Nature, for many obvious reaſons, is very profuſe. But, in the animal kingdom, no ſuch reaſons exiſt. In one impregnation, according to LEUWENHOEK's hypotheſis, millions of animated beings periſh, when one only has the good fortune to ſurvive. What are the devaſtations of all the hoſtile armies ſince the creation of the world, when compared to this immenſe waſte of animals, even in the life of a ſingle man, or rather in the impregnation of a ſingle female?

The idea of animalcules exiſting in the ſemen of males, and of afterwards becoming perfect animals, does not in the ſmalleſt degree advance our knowledge of the multiplication of ſpecies. The queſtion ſtill recurs. What gives riſe to theſe animalcules? How are they produced? Do they conſiſt of males and females? Suppoſing they did, they would only multiply their own number, from which nothing farther, in the ordinary courſe of nature, could poſſibly proceed. With regard to this vermicular hypotheſis, it ſhall only be remarked, that if the ſpermatic worms of men were the rudiments of real human beings, which required only a proper ſituation for having their parts expanded, why ſhould myriads of them be deſtroyed, and only a favoured one be ſelected, and at laſt brought to perfection? Animation, particularly in the human ſpecies, implies a ſoul, or a thinking principle. What, it may be aſked, becomes of

thoſe millions of ſouls which are daily, to us at leaſt, loſt? Are they annihilated? If ſo, why create ſuch ſuperfluous multitudes for no other ſeeming purpoſe but to hurry them prematurely out of exiſtence? The reader, I imagine, is now completely tired of this ridiculous *worm-theory* of generation, I ſhall, therefore, make a few remarks upon that of my late learned, reſpected, and moſt ingenious friend and correſpondent, the COUNT DE BUFFON.

This illuſtrious author, fully perſuaded that the notion of thoſe moving atoms, diſcernible in the ſemen, being real animals was abſurd, adopts an hypotheſis, which, though apparently different, amounts nearly to the ſame thing. To what LEUWENHOEK and others call *animalcules*, BUFFON, by a circumlocution, gives the denomination of *corps organiques vivantes*. Theſe moving particles, he ſays, have a conſtant tendency to unite, and to form larger animated bodies of a ſimilar nature. The only difference between LEUWENHOEK's *worms*, and BUFFON's *living organic particles*, ſeems to be this: The former makes a ſingle *worm*, or *homunculus*, ſufficient to produce a perfect animal. The latter takes a wider range, and ſuppoſes a numerous congeries of them neceſſary to accompliſh the ſame end. The idea, that a number of *living* organic bodies ſhould unite, and form only *one living* organized body, ſeems to be very remote from any known analogy; and no man will pretend to demonſtrate the ſuppoſed fact.

Whoever peruſes theſe ſketches of the various theories of the generation of animals which have hitherto been invented, will probably require no other arguments to convince him that philoſophers and phyſicians are ſtill as ignorant of this myſterious proceſs of Nature as they were in the days of HOMER.

Sup-

Suppoſed Effects of the Imagination upon pregnant Animals.

THIS branch of the ſubject, to ſome readers, may ſeem too contemptible and too ridiculous to be treated of in a ſerious manner. But it is the duty of philoſophers to remove prejudices, and eſpecially ſuch as are really hurtful to mankind. In this country, at leaſt, there is not a deeper rooted prejudice than that ſtrawberries, fruit of any kind, a mouſe, &c. when thrown at a pregnant woman, produce, by means of her imagination, or apprehenſion, marks ſimilar to theſe objects in the part of the foetus correſponding to that on which the mother was ſtruck. Theſe marks are even ſuppoſed to be transferable from one part of the body to another. For example, when any thing is thrown at a pregnant woman, either by accident or deſign, if ſhe inſtantly puts her hand on her hip, this action, it is firmly believed, transfers the mark to that part of the child's body, and prevents the more expoſed parts, as the face and hands, from being deformed.

But the ſuppoſed effects of imagination upon the foetus are not confined to ſubſtances thrown at the mother. Fear, love, or any ſtrong deſire, are ſaid to produce derangements in the foetus. For this reaſon, pregnant women are carefully prevented from ſeeing negroes, apes, or any other animal that may create terror or ſurprize. We are told that a woman in Paris, who happened to be with child when ſhe ſaw a criminal broken upon the wheel, was ſo ſtruck with the dreadful ſpectacle, that the bones of the infant ſhe afterwards produced were preciſely in the ſame condition with thoſe of the unfortunate ſufferer. Similar effects are apprehended when a woman, in this condition, has a ſtrong deſire to eat particular fruits,

or

or is affected with any other appetite which, at the time, cannot be gratified.

That pregnant women, agitated by any violent paſſion, placed in dangerous ſituations, or frightened by ſome ferocious animal, ſhould occaſionally produce deformed or even maimed children, is by no means impoſſible. Between the mother and the fœtus the connection is ſo intimate, that a violent agitation in the ſpirits and blood of the former may be communicated to the latter, and give riſe to diſorders which the parts of the mother are able to repel, but to which the more delicate texture of the fœtus muſt yield. We daily perceive involuntary motions extended to much greater diſtances than from the mother to the child in her womb. When a man walking before us makes a falſe ſtep, we aſſume naturally that poſition of our bodies which he ſhould take, in order to prevent himſelf from falling. We cannot ſee other men ſuffer, without feeling a part of their pain. This is the bond by which Nature attaches mankind to each other. Pleaſure and pain are the two maſters of this world. Without the one, few animals would take the trouble of continuing the ſpecies: If we had no dread of the other, many men would not chuſe to protract their exiſtence.

But the effects of terror muſt not be confounded with thoſe commonly ſuppoſed to be produced by a ſlight and momentary imagination of the mother. Terror may occaſion great derangements in the ſoft texture of a fœtus; but theſe derangements have no reſemblance to the objects by which they are produced. It is much more probable, that the terror occaſioned by a tiger, or other rapacious animal, ſhould produce the death of the child, or great derangements in its parts, than that the ſame terror ſhould give riſe to ſpots and

claws

claws reſembling thoſe of the tiger. Beſides, an infant brought forth with its bones broken as if upon the wheel, would not be ſo ſurpriſing, as the mark of a cherry proceeding from no other ſource than becauſe the mother wiſhed to eat a cherry. Nothing, however, is more common than marks which are ſuppoſed to derive their origin from the longings of the mother. A mark of this kind is ſometimes called a *cherry*, ſometimes a *raiſin*, and ſometimes a *fiſh!* After examining a number of theſe marks, M. MAUPERTUIS acknowledges, that he never ſaw one which could not eaſily be reduced to ſome excreſcence, or to ſome accidental blotch on the ſkin *. The relation of mothers, that they remembered, during their pregnancy, to have had certain fears or deſires, merits but little attention; for they never recollect to have had theſe fears or deſires till they have brought forth a child with ſome uncommon mark on its body. Their memory then ſupplies them with whatever they want. If the mark has ſome fancied reſemblance to a fruit or to an animal, they inſtantly recollect, that they longed for the one, or were frightened by the other. It is not indeed wonderful, or rather it is highly probable, that, in the courſe of nine months, any woman, whether pregnant or not, ſhould be afraid of ſome animal, or have a deſire to eat a particular kind of fruit.

In theſe ſuppoſed effects of imagination, it may be aſked, Why are not the impreſſions, and often cruel ones, of the whip, ſeen upon the offspring of mares, and ſhe-aſſes? It may, perhaps, be alleged that the inferior animals have no imagination. No perſon however, who obſerves the œconomy of the moſt common quadrupeds can entertain a doubt that they are poſſeſſed of this power; but they have not the folly to exerciſe it in a manner ſo abſurd. A mare,

* Oeuvres de Maupertuis, Tom. II. p. 78. 79. Art. Venus Phyſique.

mare, a ſhe-aſs, or a cow, though hunger often obliges them to long violently for particular kinds of food; yet their offspring never exhibit marks of graſs, of hay, of cabbages, or of turnips.

I ſhall conclude this ſubject with a few obſervations, the principal intention of which is to remove the prejudices juſt mentioned, and, of courſe, to prevent, if poſſible, the apprehenſions of females ariſing from imaginary, but often hurtful, cauſes. Though the human fœtus is, in ſome meaſure, equally independent of the mother, as the egg is independent of the hen by which it is covered; yet, it is aſſerted that, whatever affects the mother produces a ſimilar effect upon the fœtus, and that the impreſſions received by the one are communicated to the other. To this imaginary influence all thoſe reſemblances, and marks, which appear on the ſkin of particular children, have been attributed. 'Many of theſe marks,' ſays the COUNT DE BUFFON *, 'I have examined, and they uniformly appeared to be occaſioned only by a derangement in the texture of the ſkin. Every mark muſt neceſſarily have a faint reſemblance to ſomething or other: But ſuch reſemblances, I am perſuaded, depend more on the imagination of thoſe who ſee them, than upon that of the mother. On this ſubject, the marvellous has been puſhed to an extreme degree. The fœtus has not only been ſaid to bear the real repreſentations of the appetites of the mother, but that, by a ſingular ſympathy, the marks which repreſent ſtrawberries, cherries, &c. aſſume a deeper colour during the ſeaſon of theſe fruits. A little attention, however, will convince us, that theſe changes of colour are more frequent, and that they happen whenever the motion of the blood is accelerated, whether it be occaſioned by the heat of ſummer, or by any other cauſe. The marks

* Tranſlat. Vol. II. p. 330.

'marks are always either yellow, or red, or black; becauſe the 'blood gives theſe colours to the ſkin when it enters in too great 'quantities into the veſſels. If theſe marks were occaſioned by the 'appetites of the mother, why are not their forms and colours as 'various as the objects of her deſires? What a multitude of ſtrange 'figures would be exhibited, if all the whimſical longings of a mo-'ther were written on the ſkin of the child? As our ſenſations 'have no reſemblance to the objects which excite them, it is im-'poſſible that deſire, fear, horror, or any other paſſion or emotion, 'can produce real repreſentations of the objects by which they are 'occaſioned. An infant being, in this reſpect, equally independent 'of the mother as the egg is independent of the hen that ſits upon 'it, I ſhould be equally induced to believe, that the imagination of 'a hen, which ſaw by accident a cock's neck twiſted, ſhould pro-'duce wry-necked chickens from the eggs ſhe was hatching, as that 'a woman, who ſaw a man broke upon the wheel, ſhould produce, 'by the mere force of imagination, a child with all its limbs 'broken.'

Even if this laſt fact were well aſcertained, it could never be occaſioned by the imagination of the mother. What is the effect of horror? An internal movement, or perhaps a convulſion of the mother's body, which might alternately compreſs and dilate the uterus. What would be the conſequence of ſuch a commotion? Nothing, ſurely, ſimilar to its cauſe: For, if the commotion was very violent, the fœtus might have ſome of its parts deranged, or even its life might be extinguiſhed. But, is it poſſible to believe that this agitation ſhould produce in the fœtus any thing ſimilar to the thoughts or feelings of the mother? Among the infinite combinations of which Nature is capable of forming, that arrangements, both in animal and

and inanimated beings, of peculiar and extraordinary kinds ſhould ſometimes happen, is not an object of wonder. Of the numberleſs children, therefore, which daily come into the world, one may occaſionally appear with two heads, with four legs, or with the bones of all its members broken, or rather not fully united. The fœtus, as formerly remarked, poſſeſſes nothing in common with the mother. Its organs, its functions, its blood, are all peculiar to itſelf. The only matter it derives from the mother is the nutritive lymph which is ſecreted by the uterus. If this lymph is any how vitiated, if it be tainted with the venereal virus, the fœtus receives the infection; and it is reaſonable to think, that all diſeaſes proceeding from vitiated humours may be communicated from the mother to the child. The ſmall pox is often communicated in this manner; and we have too many examples of children, immediately after birth, becoming innocent victims of their parents debauchery.

We ſhould not have dwelt ſo long upon this ſubject, were it not for an earneſt deſire to remove a hurtful, and ſometimes a dangerous prejudice, to which women, even in the higheſt ranks of life, are unfortunately ſubjected. This prejudice, from whatever ſource it derived its origin, is very antient. In the 30th chapter of Geneſis, we find the following moſt curious paſſage, which is an interlocutory bargain between Laban and Jacob: 'And it came to paſs, when 'Rachael had born Joſeph, that Jacob ſaid unto Laban, ſend me 'away, that I may go into mine own place, and to my country. 'Give me my wives and my children, for whom I have ſerved thee, 'and let me go; for thou knoweſt the ſervice which I have done 'thee. And Laban ſaid unto him, I pray thee, if I have found 'favour in thine eyes, tarry; for I have learned, by experience, that 'the Lord hath bleſſed me for thy ſake. And he ſaid, Appoint me

'my

'my wages, and I will give it. And he ſaid unto him, Thou 'knoweſt how I have ſerved thee, and how thy cattle was with me. 'For it was little which thou hadſt before I came, and it is now in-'creaſed into a multitude; and the Lord hath bleſſed thee ſince my 'coming; and now, when ſhall I provide for mine own houſe 'alſo? And he ſaid, What ſhall I give thee? And Jacob ſaid, 'Thou ſhalt not give me any thing; if thou wilt do this thing for 'me, I will again keep and feed thy flock. I will paſs through all 'thy flock to-day, removing from thence all the ſpeckled and ſpot-'ted cattle, and all the brown cattle among the ſheep, and all the 'brown and the ſpotted and ſpeckled among the goats, and of ſuch 'ſhall be my hire. So ſhall my righteouſneſs anſwer for me in 'time to come, when it ſhall come for my hire before thy face: 'Every one that is not ſpeckled and ſpotted amongſt the goats and 'brown amongſt the ſheep, that ſhalt be accounted ſtolen with me. 'And Laban ſaid, Behold, I would it might be according to thy 'word. And he removed that day the he-goats, that were ring-'ſtraked and ſpotted, and all the ſhe-goats that were ſpeckled and 'ſpotted, and every one that had ſome white in it, and all the 'brown among the ſheep, and gave them into the hands of his ſons. 'And he ſet three days journey betwixt himſelf and Jacob: And 'Jacob fed the reſt of Laban's flock. And Jacob took him rods of 'green poplar, and of the haſel and cheſnut tree; and pilled white 'ſtrakes in them; and made the white appear which was in the 'rods. And he ſet the rods which he had pilled before the flocks 'in the gutters in the watering troughs, when the flocks came to 'drink; that they ſhould conceive when they came to drink. And 'the flocks conceived before the rods, and brought forth cattle ring-'ſtraked, ſpeckled, and ſpotted. And Jacob did ſeparate the lambs, 'and ſet the faces of the flocks toward the ring-ſtraked, and all the

'brown in the flock of Laban; and he put his own flocks by themſelves; and put them not unto Laban's cattle. And it came to paſs whenſoever the ſtronger cattle did conceive, that Jacob laid the rods before the eyes of the cattle in the gutters, that they might conceive among the rods. But when the cattle were feeble, he put them not in; ſo the feebler were Laban's, and the ſtronger Jacob's.'

We ſhall make no obſervations on this remarkable paſſage, but, after what has been formerly ſaid on the ſubject, leave it entirely to the judgment of the reader.

CHAP.

CHAPTER III.

SECT. I.

Of Mules, or the anomalous productions of Nature—Mules ſprung from the horſe and aſs not entirely unprolific—Of the Jumar, an animal ſuppoſed to be produced between the bull and mare—Different ſpecies of ſmall birds unite, and their progeny retain the power of multiplication.

THE anomalous productions of Nature excite aſtoniſhment in the vulgar, and call forth the reaſonings of the ſpeculative. From the ſingularity of their appearances, and that love of oddity to which moſt men are addicted, it is natural to imagine, that this ſubject ſhould have long ago been exhauſted. But the concluſion, however plauſible, is by no means juſt; for the production and oeconomy of mules have never obtained a philoſophical diſcuſſion. Much has been written; many theories have been fabricated; but the number of experiments bear no proportion to the quantity of ſpeculation. The maxim, That mules cannot perpetuate their kind, is eſtabliſhed. But, like many other maxims, it has been rendered general, more from the indolence of mankind, than from their inquiry into the genuine operations of Nature.

The

The COUNT DE BUFFON, however, in a ſupplementary volume to his hiſtory of quadrupeds, has given a conſiderable degree of probability to the fertility of mules. He laments, that, in the production of them, few experiments have been made, and that even theſe have been confined to animals poſſeſſed of the weakeſt prolific powers. Some ſpecies have a natural antipathy to others. But, when managed with addreſs, theſe antipathies may be removed. BUFFON endeavoured to procure a conjunction between the dog and the wolf: He failed in the attempt. But, in the year 1773, LE MARQUIS DE SPONTIN BEAUFORT ſucceeded. From a ſhe-wolf and a maſtive dog, he obtained four puppies at one litter *. Theſe animals, who had been brought up in familiarity with each other, joined ſpontaneouſly. Inſtances are even recorded of mutual attachment between a dog and a ſow, though their attempts were abortive †. The exiſtence of the *jumar*, a production between a bull and a mare, or between a bull and a ſhe-aſs, though particularly deſcribed by ST LEGER, and ſome other writers, has not obtained general credit. But that a bull and a mare ſpontaneouſly joined, we have direct evidence from BUFFON ‡. 'In the year 1767,' ſays this ingenious author, 'and ſome ſucceeding years, the miller at my eſtate of 'Buffon kept a mare and a bull in the ſame ſtable, who contracted ſuch a paſſion for each other, that, as often as the mare came in 'ſeaſon, the bull covered her three or four times every day. Theſe 'embraces were repeated during ſeveral years, and gave the maſter 'of the animals great hopes of ſeeing their offſpring: Nothing, however, reſulted from them. All the inhabitants of the place were 'witneſſes

* Supplement a l'Hiſt. des Anim. Quadruped. par BUFFON, p. 9. 10. & ſeq. and Tranſ. vol. 8. p. 10.

† Supplement, &c. par BUFFON, p. 35. and Tranſ. vol. 8. p. 10.

‡ Tranſ. vol. 8. p. 37.

'witneſſes to this fact, which proves, that, in our climate at leaſt, 'the bull cannot procreate with the mare, and renders this kind of 'jumar extremely ſuſpicious. I have not equal evidence to oppoſe 'to the ſecond kind, which Dr SHAW ſays proceeds from the jack-'aſs and cow. I acknowledge, that, though the diſſimilarities in 'ſtructure appear to be nearly equal in both caſes, the poſitive teſti-'mony of a traveller ſo well informed as Dr SHAW, ſeems to give a 'greater degree of probability to the exiſtence of this ſecond kind of 'jumar than we have for the firſt. With regard to the third jumar, 'proceeding from the bull and ſhe-aſs, I am perſuaded, notwithſtand-'ing the authority of MEROLLE, that it has no more exiſtence than 'the one ſuppoſed to be produced by the bull and mare. The nature 'of the bull is ſtill farther removed from that of the ſhe-aſs, than 'from that of the mare: And the unfertility of the mare and bull, 'which is aſcertained by the above examples, ſhould apply with 'greater force to the union of the bull and aſs.'

Some of the antients mention the fecundity of common mules. ARISTOTLE tells us, that the mule coupled with the mare, and produced an animal called by the Greeks *hinnus* or *ginnus*; and that the female mule readily conceived, but ſeldom brought her offſpring to perfection *. The ſame fact is mentioned by PLINY as recorded in the Roman Annals.

But BUFFON produces evidence of a leſs equivocal nature. M. DE BORY communicated to the COUNT DE BUFFON a certificate, atteſted by many credible witneſſes, that, in the month of May 1769, a female mule brought forth a well formed-foal in the iſland of St

* Ariſt. Hiſt Anim. lib. 6 c. 24.

St Domingo *. He adds, that, on account of a fall which happened to the mother, the foal was hurt, and died an hour after birth; and that its ſkin, according to his information, was tranſmitted to Dr MATTY, then ſecretary to the Royal Society of London †. M. DE BUFFON mentions ſeveral examples of the ſame kind from Spain and Italy, though he acknowledges that they are not ſo well atteſted as the former ‡. From theſe facts he concludes that hybrids, or mules, produced even from the moſt comparatively unprolific quadrupeds, are not abſolutely barren.

M. DE BUFFON farther remarks, that 'mules never produce in 'cold climates, ſeldom in warm regions, and ſtill more ſeldom in 'temperate countries §.'

The inſtances of prolific powers in mules, properly authenticated, are indeed few. But this circumſtance is perhaps more owing to the prejudices and to the indolence of mankind than to the actual ſterility of the animals. Even in our own country, we have lately had an inſtance of the prolific powers of a ſhe-mule. She was impregnated ſpontaneouſly by a horſe and produced a very ſtrong foal. The animal, however, was allowed to periſh from a ſuperſtitious notion, that it was an ominous monſter, and would bring diſcredit to the farmer's cattle, as well as to thoſe in his neighbourhood. This event happened in the county of Forfar, which is ſituated in the north of Scotland. Though I publiſhed an authenticated account of this uncommon fact in the eighth volume of my Tranſ-

* Buffon, Supplem. à l'Hiſt. des Quadrup. p. 16, 17. and Tranſlat. Vol. VIII. p. 15.

† Ibid. p. 18. and Tranſlat. Vol. VIII. p. 16.

‡ Ibid. and Tranſlat. Vol. VIII. p. 17.

§ Ibid. p. 19. and Tranſlat. Vol. VIII. p. 18.

Tranſlation of Buffon, it will not be improper, for the ſatisfaction of my readers, to ſubjoin, verbatim, the authentication in a note *.

Birds,

* Having heard that a mule, belonging to Mr David Tullo, farmer in Auchtertyre, in the county of Forfar, had, ſome years ago, brought forth a foal I tranſmitted a few queries to be put to Mr Tullo; and requeſted that his anſwers might be legally atteſted by a magiſtrate. This requeſt was chearfully complied with; and the following is an exact copy of the queries, anſwers, and atteſtations.

Interrogatories to be put to Mr Tullo, tenant in Auchtertyre, pariſh of Newtyle, and county of Forfar, with his anſwers thereto.

1*mo*, Had you ever a ſhe-mule? At what period? Is it true that the mule had a foal? At what time was ſhe covered; and when did ſhe foal?

Anſwered by Mr Tullo: That he bought a ſhe-mule about twenty years ago: That ſhe was conſtantly in ſeaſon for a horſe: That, about ſome years thereafter, he gave her a horſe; and that ſhe, thereafter, gave him a foal about the 10th of June. The mule's price was four pounds five ſhillings Sterling.

2*do*, What was the colour of the foal? Was there any thing particular in its figure?

Anſwer: The foal was exactly the colour of its mother, inclined to black with a very large head, big ears, and ſmall tail; and the declarant thinks, had its head been weighed when foaled, it would have weighed nearly as much as its body.

3*tio*, How long was the animal allowed to live?

Anſwer: The next day after the mule foaled, it was ſent, with its mother, to the Loch of Lundie, in order to let the foal die, as the declarant could not want the mule's work, and the mother ſeemed not fond of the foal: That it was accordingly left, and next day came to Auchtertyre, about two miles diſtance, over a hill, with the cattle of Auchtertyre, that had been grazing near to that place, and was drowned in a ditch the day following.

4*to*, Was its ſkin preſerved, or the head, or any other bones of the ſkeleton? Could any part thereof be ſtill found?

Birds, in general, are more prolific, and likewiſe more ardent in their amours, than quadrupeds. A cock, when excluded from hens, attacks another cock, a capon, a turkey, or a duck. The ſmaller birds fly to females of a different ſpecies when deprived of their own. Commixtures of this latter kind have been repeatedly tried, and the mongrel offspring, inſtead of being barren, were found to be equally prolific as their parents. The goldfinch and Canary bird, the red-breaſted

Anſwered: Neither the ſkin, nor any part of the ſkeleton was preſerved, nor can now be had; though the declarant has often regretted the not preſerving the foal, as its mother always performed any work that a horſe of fifteen pounds value could do.

5*to*, Is the mother ſtill alive? What is her age?

Anſwer: The mother died, about eight years ago, of an epidemic cold that was raging among the horſes in this country: The mule had little or no milk after foaling, and the foal got ſome cow's milk: And this is all he remembers of the matter.

DAVID TULLO.

Auchtertyre, 4th February 1780.

We James Small tenant in Burnmouth, and Robert Ramſay tenant in Newtyle, hereby certify, That we have often ſeen the mule above deſcribed, and we know that ſhe had a foal, as is narrated by David Tullo.

JAMES SMALL.
ROB. RAMSAY.

Ballantyne-houſe, 4th February 1780.

The within interrogatories were put to David Tullo, tenant in Auchtertyre, anent the mule he had, and the foal ſhe produced, to which he gave the anſwers ſubjoined to each query, and ſigned them, as did James Small and Robert Ramſay, atteſting the truth thereof, in preſence of

GEORGE WATSON, J. P.

The original atteſtation is in my poſſeſſion; and I lately tranſmitted notorial or authenticated copies of it to the COUNT DE BUFFON, and to THOMAS PENNANT, Eſq; of Downing in Flintſhire.

breaſted and common linnet, have been ſubjected to theſe trials, and the hybrids or mules produced by them uniformly retained their prolific powers*.

I cloſe this ſection with remarking, that Nature ſeems to indulge more frolics in the myſteries of Venus than philoſophers are apt to imagine; and that ſome animals whom we are taught to regard as diſtinct and original ſpecies, may only be mules endowed with the faculty of tranſmiſſion.

* See Buffon des Oiſeaux, Tom. I. p. 22. and Tom. IV. Art. du Serin des Canaries.

SECT. II.

Of a Plan for raiſing the raw material of Silk *in Britain—The texture of Inſects is extremely ductile—From many circumſtances in their hiſtory, it ſhould appear that different kinds intermix, and produce new and fertile ſpecies—Upon this view of Nature, a probable plan for producing the raw material of a Silk Manufacture in Britain is ſubmitted to the conſideration of the Public—The experiment is eaſy, attended with no expence, and highly worthy of a trial.*

INVENTION is often the offspring of accident: But prejudice, or fixed opinion, is an inſurmountable barrier to every invention that depends upon a proceſs of reaſoning. A mind, fettered by a ſtrong predilection for particular notions, can never move with freedom, or view objects in different aſpects; and, of courſe, has not even the chance of ſtumbling on novelty. Unfortunately for ſcience, this is a very general characteriſtic of the human ſpecies. We are gregarious animals, not in the phyſical ſenſe alone: With regard to opinion and belief, this herding quality is a more ſtriking feature in the complexion of humanity. Strongly impreſſed with the force of this truth, ſome philoſophers run into the oppoſite extreme. Becauſe moſt men believe without reaſon, there are others whom no reaſoning can convince. Between the two ingenuous minds

minds are confounded, ſubjects of moment are conſidered either as inſcrutable or as perfectly known, and the ſpirit of reſearch receives a mortal wound.

To give general currency to a hypothetical notion, requires only the adventitious aid of a few great names. If, upon this ſlight baſis, the fabric reſts for a few years, ingenuity, argument, and even experiment, may open their ineffectual batteries. Such is the incorrigible attachment to what men call *authorities*, that nothing but *greater authorities* can eradicate an eſtabliſhed prejudice. This temper, which originates from weakneſs, credulity, and indolence, is perhaps the greateſt obſtruction that ſcience has to encounter in its progreſs toward perfection. Hence the man who refutes a received theory does more ſervice to ſcience than its inventor; becauſe he unſhackles the mind, and freſh inquiries proceed without embarraſſment. New views, for the ſame reaſon, which require the illuſtration of experiment, are of the greateſt utility; for, though the notions ſhould turn out to be falſe, unlooked for truths riſe up in the courſe of the reſearch. Notwithſtanding HARVEY's ſyſtem of *eggs*, LEUWENHOEK's *homuncuſi*, BUFFON's *living organic particles*, and BONNET's *infinite ſeries of germs*, the theory of generation is ſtill involved in the deepeſt obſcurity; yet the inquiry has enriched anatomy and ſcience with many new and valuable facts.

Becauſe mules from the aſs and mare were ſuppoſed to be barren, it has been concluded, and even recognized as a law of Nature, that every anomalous production muſt likewiſe be denied the faculty of procreating. The wiſdom of the Creator has been celebrated in the eſtabliſhment of this law. It has been regarded as a barrier againſt the mixture and confuſion of ſpecies; and the ſacredneſs of the imaginary

ginary inſtitution has almoſt totally precluded all inquiry into the ſubject.

The ingenious M. DE BUFFON, however, ventured to inveſtigate the truth. He brought direct evidence, that the common mule, a production from two of the moſt unprolific quadrupeds, is not deprived of the power of multiplying. Even in our own climate, we had lately an inſtance of a prolific ſhe-mule *.

By revolving theſe and ſimilar ideas, I was led to the following views, which, with much deference, I ſubmit to the attention of the public. For the ſake of brevity, I ſhall deliver moſt of them in the form of queries.

I. As we are ignorant of many circumſtances in the œconomy of animals, and. as it is certain. that mongrels from the commixture of different ſpecies of ſmall birds have the power of tranſmitting the kind, may we not conclude, that the ſuppoſed law of ſterility in mules is at leaſt not ſo general as we have been taught to believe?

II. As the experiments have hitherto been confined to the moſt ſterile quadrupeds, may we not reaſonably expect, that trials made upon the more prolific animals, as the ſow, the rabbit, &c. would afford ſtill farther proofs of the fœcundity of anomalous beings?

III. Deſcending lower in the ſcale of animation, till we come to frogs, lizards, and the reptile race, whoſe prolific powers are amazing, and in whom Nature aſſumes a more ſoft and ductile texture, may

* See p. 145.

may we not hope to procure multitudes of mules endowed with the faculty of tranſmiſſion?

IV. Proceeding ſtill lower, till we arrive at the inſect tribes, do not ſimilarity of texture, aſtoniſhing fertility, the ſame mode of generating, a great coincidence in the ſtructure of parts, both external and internal, the living on the ſame or ſimilar nouriſhment, and many other circumſtances, concur in marking them out as the fitteſt objects for trials of this kind, and from which the greateſt ſucceſs is to be expected?

The chief obſtruction to the execution of trials of this nature ariſes from the difficulty of alluring different ſpecies into mutual and ardent embraces. In one tribe of inſects, however, I imagine, that this difficulty will be completely removed. The numerous tribe of butter-flies, after eſcaping from the chryſalis ſtate, ſeem to have no other deſtination but that of propagating and continuing the kind. They no ſooner burſt through the fetters of the chryſalis, than they roam about in queſt of a mate with all the fervours of deſire. When they meet their object, they obey with alacrity the commands of Nature. After the operation is finiſhed, the female lays her eggs, and the male acquires a torpid aſpect. The intention of Nature being thus compleated, both male and female fall victims at the altar of Venus.

As butterflies die very ſoon after procreating, and, as they have few other deſires while in that ſtate, is it not probable, that, when excluded from their particular kinds, males and females of different ſpecies will ſpontaneouſly unite? From this union, is it not likewiſe probable, that the eggs of the females will be impregnated?

From

From the accurate diſſections of the celebrated REAUMUR it appears, that the parts of generation in the various kinds of butterflies are extremely ſimilar. From the ſeveral metamorphoſes to which they are ſubjected, the ductility of their texture is alſo apparent. When, to theſe facts, we add their great prolific powers, is it not reaſonable to ſuppoſe, that anomalous productions from different ſpecies will continue to be fertile?

This reaſoning may eaſily be ſubjected to the teſt of experiment. Let any perſon feed a variety of caterpillars in ſeparate boxes. When transformed into moths or butterflies, let the males and females of different ſpecies be admitted to each other. The effects of theſe trials time alone can determine. If it happens, as there is great reaſon to expect, that theſe inſects freely unite; that the eggs of the females are impregnated by this union; and that the ſpurious offspring are endowed with prolific powers, and perpetuate the kind, then will philoſophers have the ſatisfaction of ſeeing an univerſal prejudice, concerning the oeconomy of animals, completely removed.

The mere gratification of curioſity would juſtify a ſet of experiments that require ſo little time, trouble, or expence *. But the idea of utility gives alacrity to inveſtigation. Conſidering whether ſome uſe might not be derived from theſe projected trials upon butterflies, the following notion, which, perhaps, may be regarded as fanciful, occurred.

The ſilk worm is a native of warm climates. Its conſtitution is too

* About fourteen years ago, I attempted to make theſe experiments. But, from my ſituation in a large city, and the want of proper food, I found that my ſilk worms died before they arrived at maturity.

too delicate to bear the cold and the viciſſitudes of our weather. Neither is the mulberry, the proper food of the animal, raiſed here in ſufficient quantities. Theſe are the chief obſtructions to the culture of ſilk in this country. But large ſums of money are annually ſent out of Britain for purchaſing raw ſilk. Hence any rational ſcheme for preventing this expenditure merits the attention both of philoſophers and of the public. I deſpair not of ſeeing this deſirable end accompliſhed. I even look forward with joy to a period, which I hope is not diſtant, when the production of good ſilk will be as common in Scotland as in any other nation in Europe, or Aſia.

The mode I propoſe is ſimple; and therefore its ſucceſs is the more probable. In this country, we have many caterpillars which ſpin pods of no inconſiderable ſize and goodneſs. A caterpillar that feeds upon the pear-tree, and is produced from the fly called *Phalaena pavonia*, or *peacock-moth*, ſpins a large pod, the ſilk of which is coarſer and ſtronger than common ſilk. Another ſpecies, called by the French *la livrée*, feeds on the leaves of moſt fruit trees, and ſpins a pod extremely ſimilar to that of the ſilk worm. Other caterpillars, poſſeſſing the ſame qualities, live upon the oak, the elm, the plane, &c. But it is needleſs to give a more enlarged enumeration. Now, commixtures with the butterflies of theſe caterpillars and the ſilk fly will, I imagine, produce worms attempered in conſtitution to the climate of Britain, capable of being nouriſhed by ſome of our indigenous plants, endowed, at the ſame time, with the faculty of perpetuating the kind, and of ſpinning a ſilk equal, if not ſuperior, to that imported from warmer regions.

To this ſcheme it may be objected, that, on the ſuppoſition of its practicability, the ſpecies of butterflies ſhould be perpetually augmenting,

menting, and that to their variety there ſhould be no end. I anſwer, that this objection ſtrengthens the probability of the plan: For the varieties of the butterfly and moth, already known and deſcribed, amount nearly to 1000. Many of theſe, I doubt not, have been produced by accidental commixtures. Two cauſes concur in preventing ſuch a frequency of commixtures of this kind as might be imagined. Many ſpecies of caterpillars aſſociate, and fix their chryſales upon particular plants or places, and, immediately after their metamorphoſis, the males attach themſelves to the females. Other ſpecies not only aſſociate, but eſcape from the chryſalis in particular months of the year, as if Nature meant to prevent their uniting. Some kinds come out only in April, others in May, June, July, Auguſt, and September. Theſe and other circumſtances render the accidental concourſe of males and females of different ſpecies much leſs frequent than if all the kinds lived at the ſame time, and fed upon the ſame plants.

It may likewiſe be objected, that, as different ſpecies are transformed in different months, and as the flies die ſoon after their change, it will be impoſſible to try theſe projected experiments with kinds which come out of the chryſalis ſtate at the diſtance of one or two months from each other. This objection is removed by two ſingular facts. It is true, that coition debilitates and quickly kills butterflies. But, when confined, and prevented from mutual embraces, they preſerve both their exiſtence and vigour for five or ſix months *. Beſides, from the accurate experiments of REAUMUR, we learn, that the duration of the chryſalis ſtate may be prolonged

* Wahlbom in Amoen. Acad. Vol. I. p. 105.

or ſhortened at pleaſure, by the application of different degrees of heat and cold *.

Upon the whole, I moſt ſeriouſly recommend this idea to the attention of men who have leiſure, and who are properly ſituated, to give the project a fair trial. If my ideas be right, the perſon who realiſes them will not only make a fortune, but immortaliſe his name.

CHAP.

* Reaumur, Tom. III. 12mo. edit. p. 11.

CHAPTER IV.

Of the Varieties of Man which have hitherto been diſcovered in every region of the Globe—Varieties in Colour—in Stature—in Figure and Features—in Manners and Cuſtoms—in Religion, and Religious Opinions and Ceremonies—Of Cannibals both ancient and modern—Of Human Sacrifices in the Old and New Worlds—Of War and Warlike Inſtruments—Of Agriculture, and the Spontaneous Productions of the Earth—Of Marriages, Burials, Civil Government, Arts and Manufactures, &c. &c.

WITH regard to colour, in the human ſpecies, from black it runs through almoſt every poſſible ſhade till it arrives at what we denominate *white*. Many circumſtances give riſe to differences in the colour of the ſkin. Even in the ſame climate, in the ſame town or village, marked ſhades of colour are to be obſerved not only in individuals, but in whole families, and theſe ſhades are generally tranſmitted to poſterity, except when the breed happens to be croſſed by races of individuals of a different complexion, which produces an intermediate ſhade. In a large city, independent of foreign commixtures, what a variety of colours are to be perceived?

Notwithſtanding theſe local, and often hereditary ſhades, which take place in the ſame climate, and even in a ſmall diſtrict of the ſame

ſame country, Nature, from particular ſituations as to heat and cold, produces diſtinctions of the moſt marked kinds.

In the Old Continent, however, the deepeſt ſhade of black is to be found in the Torrid Zone. From this region of the earth, as we approach either to the ſouth or north, the colour of the human kind gradually becomes more and more white, till we arrive at the temperate climates, where the complexion, to our eyes, at leaſt, is moſt beautiful. But our ideas of beauty are entirely relative. To a negroe, the deepeſt black is the moſt admired colour in a female; and the ſame ſentiment is and muſt be entertained by people of all intermediate colours.

In proportion as we recede from the equator, either to the ſouth or the north, the ſhades of colour become always whiter and whiter. But here Nature, correſpondent to her uniform procedure, reverſes, or rather confirms, her original plan. From the negroes under or near the line, to the termination of the temperate zone, the gradations of colour are to be aſcertained. But, what is ſingular and curious, after paſſing north of the temperate zone, the colour of the natives is not only more ſwarthy, but again approaches to blackneſs. From this fact, which is perfectly known, it ſhould ſeem, that extreme heat and extreme cold produce nearly the ſame appearances on the human ſkin.

The inhabitants of Lapland and of Nova Zembla, the Borandians, the Samoiedes, the northern Tartars, the Oſtiacks, the Greenlanders, and the ſavages to the north of the Eſquimaux Indians, ſeem to be the ſame race of people. All of them have broad large faces, and flat

flat noſes *. Their eyes are of a yellowiſh brown colour, inclining to black †. Their eye-lids extend towards the temples; their cheek-bones are remarkably prominent; their mouths are large, and their lips thick and reflected; their voice is ſqueaking; their head is large; their hair black and ſmooth; and their ſkin is of a tawny or ſwarthy hue. Their ſize is diminutive, moſt of them not exceeding four feet high; and their talleſt men are not above four feet and a half. This numerous race of people differ ſo much from all others, that they appear to conſtitute a diſtinct ſpecies. The Borandians are ſtill ſmaller than the Laplanders. The iris of their eyes is of the ſame colour; but the white is of a reddiſh yellow. Their ſkin is more tawny; and their legs are very thick and ill-ſhaped.

The Samoiedes are more ſquat than the Laplanders; their heads are larger, their noſes broader, their complexion darker, their legs ſhorter, and their beards more ſcanty of hair. The ſkin of the Greenlander is more tawny than that of the other nations, being of a deep olive colour. It is even ſaid, that ſome of them are as black as the African negroes. The women, among all theſe nations, are as ugly as the men, and reſemble them ſo much, that the diſtinction is not eaſily to be perceived. In Greenland, the women are very ſhort; but their bodies are well proportioned. Their hair is blacker, and their ſkin ſofter than thoſe of the Samoiedes. Their breaſts are ſo long and flexible, that they can ſuckle their children over their ſhoulders. Their nipples are as black as jet, and their ſkin is of a deep olive colour. Their viſage is large, their eyes ſmall, but black and vivacious, and their feet and hands are ſhort. In all other reſpects,

* Le Voyage de Regnard, tom. I. p. 169. et Les Voyages du Nord faits par les Hollandois.

† Linnæi Fauna Suecica, 1746, p. 1.

reſpects, they reſemble the Samoiede females. The ſavages north of the Eſquimaux, and even in the northern parts of Newfoundland, have a great reſemblance to the Greenlanders. Like them alſo, their ſtature is ſmall, their faces broad, and their noſes flat. Their eyes, however, are larger than thoſe of the Laplanders.

All thoſe races reſemble each other not only in deformity, in lowneſs of ſtature, and in the colour of their hair and eyes, but likewiſe in their diſpoſitions and manners. All of them are equally groſs, ſtupid, and ſuperſtitious. The Daniſh Laplanders keep large black cats, to whom they communicate their ſecrets, and conſult in all their important affairs. In every family, among the Swediſh Laplanders, a drum is kept for the purpoſe of conſulting the devil; and, though they are robuſt and nimble, ſuch is their puſillanimity, that they never could be perſuaded to face a field of battle. Guſtavus Adolphus attempted to embody a regiment of Laplanders; but he was obliged to relinquiſh the project. They cannot, it would appear, exiſt any where but in their own country, and in their own manner. They travel on the ſnow with ſkates made of wood, about two yards long, and half a foot in breadth. With theſe they run on the ſnow ſo rapidly, that they overtake eaſily the ſwifteſt animals. They uſe a long pole, pointed with iron at one end, and rounded at the other. By means of this pole, they puſh themſelves forward, direct their courſe, prevent their falling, ſtop their impetuoſity, and kill the animals they purſue *. The ſkates employed by the Samoiedes are ſhorter, ſeldom exceeding two feet in length. They likewiſe uſe the bow and the croſs-bow; and the Muſcovite Laplanders are ſaid to dart a javelin with ſuch force and dexterity, that, at

* A ſpecimen of theſe ſkates may be ſeen in the Muſaeum of the Antiquaries of Scotland.

at the diſtance of thirty paces, they often hit a mark not larger than a crown piece. They hunt the lynx, the fox, the martin, and the ermine, and barter their ſkins for brandy and tobacco. Their principal food is dried fiſh, and the fleſh of the bear and rein-deer. Their bread conſiſts of the pounded bones of fiſhes, mixed with the tender bark of the birch or the pine tree. Their common drink is whale-oil, or water in which the berries of the juniper have been infuſed. They are, in general, idolaters and extremely ſuperſtitious. More groſs than ſavages, they have neither courage nor a ſenſe of ſhame. They bathe promiſcuouſly naked, boys and girls, mothers and ſons, brothers and ſiſters, without feeling the ſmalleſt ſenſe of impropriety. They offer their wives and daughters to ſtrangers, and think it the higheſt affront if the offer be rejected. This cuſtom is univerſal among the Samoiedes, the Borandians, the Laplanders, and the inhabitants of Greenland. The Laplanders, in winter, clothe themſelves with the ſkin of the rein-deer, and, in ſummer, with the ſkins of birds.

In Nova Zembla, the women pierce their noſes and ears, and ornament them with pendants of blue ſtones; and, to augment their charms, they draw blue lines acroſs their forehead and chin. In Greenland, the women clothe themſelves with the ſkin of the dog-fiſh. They likewiſe paint their faces blue and yellow, and wear pendants in their ears. All of them live under ground, or in huts ſunk almoſt below the ſurface, which they cover with the bark of trees, or with the bones of fiſhes. During winter, it is a common practice with them to make ſubterraneous communications from one habitation to another, by which they are enabled to viſit their neighbours without going abroad. Darkneſs, continued for ſeveral months, obliges them to illuminate their dreary abodes with lamps,

in which they burn the ſame whale-oil that they uſe for their common drink. In ſummer, they ſeem to have as little enjoyment as in winter; for they are obliged to live perpetually in a thick ſmoke. They have no other contrivance to guard themſelves againſt the bite of the gnats, and various other flies, which are extremely numerous, becauſe their ſummer is ſo ſhort, that flies of every ſpecies appear nearly at the ſame time, and crowd the air. Notwithſtanding this melancholy and hard mode of living, theſe people are ſeldom ſick, and almoſt all of them arrive at extreme old age. The men, even when old, are ſo vigorous, that they are not eaſily to be diſtinguiſhed from the young. Blindneſs, a natural conſequence of their ſituation, is very frequent among them, and is the chief malady to which they are ſubjected. Their eyes being perpetually dazzled with the reflection from the ſnow in winter, autumn, and ſpring, and at all ſeaſons involved in ſmoke, few of them retain their ſight after an advanced period of life.

From theſe and ſimilar facts, it appears, that the Samoiedes, the Zemblians, the Borandians, the Laplanders, the Greenlanders, and the ſavages to the north of the Eſquimaux, belong to the ſame race of men; becauſe they reſemble each other in figure, in ſtature, in colour, in manners, and in cuſtoms. That very ſtrange cuſtom of offering their wives and daughters to ſtrangers, and of being vain when the offer is accepted, proceeds, probably, from a ſenſe of deformity both in themſelves and in their females. In the neighbouring nations, on the contrary, as thoſe of China and Perſia, where the women are moſt beautiful, the jealouſy of the men is remarkable. Upon ſurveying the different nations adjacent to that vaſt tract of country occupied by the Laplanders, there ſeems to be no relation between them and the race laſt mentioned. The Oſtiacks and the

Tonguſians,

Tonguſians, who are adjacent to the Samoiedes on the ſouth and ſouth-eaſt, are the only people who have any marked reſemblance to them. The Samoiedes and Borandians have no ſimilarity to the Ruſſians. The Laplanders reſemble not, in any degree, the Fins, the Goths, the Danes, or the Norwegians. The Greenlanders differ totally from the ſavages of Canada, who are large and well made. The Oſtiacks, however, ſeem to be a leſs ugly, and a taller branch of the Samoiedes *. The Oſtiacks feed upon raw fleſh or fiſh. They eat every kind of animal without diſtinction; and for drink they prefer blood to water. They are, in general, idolaters; and they appear to form the line which ſeparates the Lapponian and Tartarian races. The Tonguſians ſeem to be leſs degenerated than the Oſtiacks; for, though ugly, they are taller and better proportioned. The Samoiedes and Laplanders lie under the 68th or 69th degree, but the Oſtiacks under the 60th. The Tartars, who are ſituated along the Wolga, in the latitude of 55, are a groſs, ſtupid, and brutal people. Like the Tonguſians, they have no ideas of religion; and they will not marry young women till they have had intercourſe with other men.

In Aſia, the Tartars occupy vaſt regions. They ſpread over that great tract of country which extends from Ruſſia to Kamſchatka. The Tartars border with China, the kingdoms of Bouton, and of Alva, and the Mogul and Perſian empires, as far as the Caſpian ſea, on the north and weſt. They extend along the Wolga and the weſt coaſt of the Caſpian, as far as Dagheſtan. They have penetrated to the north coaſt of the black ſea, and have eſtabliſhments in the Crimea, in Little Tartary, and in the Ukraine. Theſe people, even

* Le Voyage de Evertiſbrand, p. 212. les nouveaux Mem. ſur l'etat de la Ruſſie, Tom. I. p. 270.

when young, have large wrinkled foreheads; their noſes are broad and ſhort, and their eyes ſmall and ſunk *. Their cheek bones are high, and the lower part of their face is very narrow. Their chin is long and prominent, and the upper jaw falls in. The teeth are long and diſtinct from each other. The eye-brows are ſo thick, that they cover the eyes; the face is flat, the ſkin tawny, and the hair black. Their bodies are of a middle ſize, but ſtrong and robuſt. Their beards are ſcanty, and the hairs are diſpoſed in tufts, like thoſe of the Chineſe. There is ſomething frightful in the countenances of the Calmuck Tartars. All of them are wandering vagabonds, and live in tents made of cloth, or of ſkins. They eat the fleſh of horſes, either raw, or a little ſoftened by putrifying under their ſaddles. They likewiſe eat fiſhes dried in the ſun. Mares milk, fermented with the flour of millet, is their uſual drink. They all ſhave the head, except a ſmall tuft, which is allowed to grow, in order to form two treſſes, one of them to hang on each ſide of the face. The women, who are as ugly as the men, wear their hair, in which they fix ſmall pieces of copper, and ſimilar ornaments.

No marks of religion, or of decency in their manners, are to be found among moſt of theſe tribes. They are all robbers; and the Tartars of Dagheſtan, who border on civilized nations, have a great trade in ſlaves, whom they carry off by force, and ſell to the Perſians and Turks. Their chief wealth conſiſts of horſes, which ſeem to be more numerous in Tartary than in any other country. The Tartars live perpetually with their horſes, and are continually occupied in training, dreſſing, and exerciſing them. They manage their horſes with ſuch ſkill and addreſs, that a ſtranger would be apt to imagine that both creatures were animated by the ſame mind.

To

* Vid. les Voyages de Rubruſquis, de Marc Paule, de Jean Struys, du Pere Avril, &c.

To know the particular diſtinctions which ſubſiſt among the race of Tartars, we muſt attend to the deſcriptions of their different tribes communicated to us by travellers. TAVERNIER informs us, that the Calmucks, who live in the vicinity of the Caſpian Sea, between Muſcovy and Great Tartary, are a robuſt people, but, perhaps, the moſt ugly and deformed beings exhibited upon this earth. Their faces are ſo broad and ſo flat, that their eyes, which are ſmall, are ſituated five or ſix inches aſunder. Their noſes are ſo depreſſed, that, inſtead of regular noſtrils, two holes are only to be ſeen. Their thighs bend outward, and their legs inward.

After the Calmucks, the Tartars of Dagheſtan may be conſidered as holding the next rank in deformity. The Little Tartars, or thoſe of Nogai, who live in the neighbourhood of the Black Sea, though they have flat faces, ſmall eyes, and, in their general figure, reſemble the Calmucks, are by no means ſo ugly. This race of Tartars have probably loſt a part of their original deformity by their intercourſe with the Circaſſians, the Moldavians, and other adjacent nations. Like the Calmucks, the Siberian Tartars have broad faces, ſhort flat noſes, and ſmall eyes; and, though their languages greatly differ, their general ſimilarity is ſo ſtriking, that they ought to be regarded as the ſame race of people. PERE AVRIL conſiders the Tartars of Bratſki as of the ſame race with that of the Calmucks; and, as we advance eaſtward, and approach Independent Tartary, the features of the Tartars gradually ſoften and become more agreeable; but their eſſential characteriſtics are never obliterated. The Mongou Tartars, who conquered China, are the moſt poliſhed race of theſe people. Still, however, like all the other tribes, their eyes are ſmall, their faces broad and flat; and they have thin black or red beards *, ſhort

* Palafox, p. 44.

ſhort ſunk noſes, and a tawny complexion. The inhabitants of Thibet, and the other ſouthern provinces of Tartary, are likewiſe leſs deformed.

Mr SANCHEZ, firſt phyſician to the Ruſſian army, a man of learning and ability, communicated to the COUNT DE BUFFON ſome remarks made by him, in travelling through Tartary, of which the following is the ſubſtance.

Mr SANCHEZ, in the years 1735, 1736, and 1737, viſited the Ukraine, the banks of the Don as far as the ſea of Zabach, and the confines of Cuban, till he arrived at Aſoph. He travelled over the deſarts which lie between the country of the Crims and Backmut. He journeyed among the wandering Calmucks from the kingdom of Caſan to the banks of the Don, among the Tartars of Crimea and Nogai, and likewiſe among the Tartars of Kergiſſi and Tcheremiſſi; who are ſituated to the north of Aſtracan, from the 50th to the 60th degree of latitude. He informs us, that the Tartars of Crimea and of Cuban were of a middle ſtature; and that they had broad ſhoulders, narrow flanks, ſtrong nervous limbs, black eyes, and a tawny complexion. The Tartars of Kergiſſi and Tcheremiſſi are ſmaller and more ſquat; they are groſſer and leſs agile; their eyes are black; their complexion tawny, and their faces are ſtill broader than thoſe of the former. Among theſe Tartars, he obſerved ſeveral men and women who had no reſemblance to the natives, ſome of whom were as white as the inhabitants of Poland. As theſe nations abound with both male and female ſlaves, who are carried off from Ruſſia and Poland; as a plurality of wives and concubines is permitted by their laws; and, as their Murzas, or nobles, bring their wives from Georgia and Circaſſia, the children produced by theſe al[illegible] are whiter,

and leſs deformed than thoſe of the unmixed natives. Among the Tartars, there is even a whole nation, that of the Kabardinſki, the inhabitants of which are remarkably beautiful. M. SANCHEZ ſaw no leſs than three hundred of theſe men in the Ruſſian ſervice; and he aſſures us that they made a very handſome appearance. Their countenances were as white and freſh as any in Europe: They had large black eyes; and they were tall and well proportioned. He adds, that the Lieutenant-General of Serapikin, who had lived long in Kabarda, informed him, that the women were equally beautiful. This nation, however, M. SANCHEZ tells us, are ſaid to have come originally from the Ukraine, and had been tranſported into Kabarda about an hundred and fifty years ago.

On one ſide, the blood of the Tartars is mixed with that of the Chineſe, and, on the other, with that of the oriental Ruſſians. But this mixture never obliterates entirely the characteriſtic features of the race; for, among the Muſcovites, the Tartarian aſpect is not unfrequent; and, though the former have originated from the common European race, many individuals with ſquat bodies, thick thighs, and ſhort legs, like thoſe of the Tartars, are ſtill to be found. But the reſemblance of the Chineſe to the Tartars is ſo great, that it is uncertain whether they belong not to the ſame race. The moſt ſtriking difference between thoſe people ariſes from a total diſparity in their diſpoſitions, manners, and cuſtoms. The Tartars are warlike, fierce, and fond of hunting. They love exerciſe and independence; and they are hardy and brutally groſs. The manners of the Chineſe are totally oppoſite; for they are effeminate, peaceable, indolent, ſubmiſſive, ſuperſtitious, ceremonious, and paraſitical. In their form and features, however, they greatly reſemble the Tartars.

It

It is remarked by HUGON, that the Chineſe men are large and fat, with well-proportioned limbs, round broadiſh faces, ſmall eyes, large eye-brows, high eye-lids, and ſmall ſunk noſes. They have ſeven or eight tufts of hair only on each lip, and very little on the chin. Thoſe who inhabit the ſouthern provinces are more brown and tawny than thoſe in the northern parts; and, in colour, they reſemble the people of Mauritania, or the moſt ſwarthy of the Spaniards. In the middle provinces, however, they are as white as the Germans. DAMPIER informs us, that in the iſland of St John, on the coaſt of China, the natives are tall, erect, and not incumbered with fat; that they have long viſages and high foreheads; that their eyes are ſmall, their noſe pretty large and elevated, their mouth of a moderate ſize, their lips thin, their complexion aſh-coloured, and their hair black; that their beard is naturally ſcanty; and that they pull out all the hairs, except a few on the upper lip and chin. GENTIL tells us, that the Chineſe, eſpecially in the northern provinces, have nothing diſagreeable in their aſpect. Thoſe, indeed, in the ſouthern provinces, whom neceſſity expoſes much to the ſun, are tawny. They have, in general, ſmall oval eyes, ſhort noſes, and thick bodies of a middle ſtature. The women, he aſſures us, employ every art in order to diminiſh their eyes. For this purpoſe, the young girls, inſtructed by their mothers, extend their eye lids continually, with the view of making their eyes oblong and ſmall. Theſe properties, in the eſtimation of the Chineſe, when joined to a flat noſe, and large, open, pendulous ears, conſtitute the perfection of beauty. He adds, that their complexions are fine, their lips of a beautiful red colour, their mouths well-ſhaped, and their hair exceedingly black; but that their teeth are blackened by chewing betle; and their conſtant practice of painting injures their ſkin to

ſuch

ſuch a degree, that they have the appearance of old age before they reach their thirtieth year.

PALAFOX aſſures us, that the Chineſe exceed the oriental Tartars in whiteneſs; that they have alſo ſmaller beards; but that, in every other reſpect, there is little difference in the countenances of theſe two nations. INNIGO BIERVILLAS tells us, that the Chineſe women are formed with more ſymmetry than the men. The faces of the latter, he remarks, are large, and their complexions of a yellowiſh hue; their noſes are broad and flattened; and their bodies are thick and coarſe. On the contrary, the women are exceedingly handſome; their complexion and their ſkin are very fine; and their eyes are beautiful. He adds, that few of them have good noſes, becauſe, from ſome prejudice, they are artificially compreſſed during infancy. Almoſt all the voyagers agree, that, in general, the Chineſe have broad faces, ſmall eyes, and hardly any beard; that the natives of Canton, and along the ſouthern coaſt, are as tawny as the inhabitants of Fez in Africa; but that thoſe of the interior provinces are commonly white. From theſe and ſimilar facts, it is apparent that there are great ſimilarities between the Tartars and Chineſe. To confirm this idea, we ſhall ſubjoin the following paſſage from Chardin: 'The ſize of the Little Tartars,' he remarks, 'is about four 'inches ſmaller than that of the Europeans; and, in the ſame pro- 'portion, they are thicker. Their complexion is copper-coloured; 'their faces are broad, flat, and ſquare; their eyes are ſmall, and 'their noſes compreſſed. Now, theſe are the exact features of the 'Chineſe; for, after the moſt minute inveſtigation, during my tra- 'vels, I found that all the people to the caſt and north of the Caſ- 'pian Sea, and to the eaſt of the peninſula of Malacca, have the 'ſame configuration of face, and nearly the ſame ſtature. From

'this circumſtance I was induced to think that all theſe people, not-
'withſtanding the varieties in their manners and complexion, ſprung
'from the ſame ſource; for differences in colour proceed entirely
'from climate and the manner of living; and varieties in manners
'originate from the ſoil, and from the degrees of opulence enjoyed
'by different nations *.'

We are informed by Father PARENNIN, who reſided long in China, and diligently obſerved the manners of that people, that the neighbouring nations on the weſt, from Thibet to Chamo, differed from the Chineſe in language, features, external conformation, and manners; that they are rude, ignorant, and ſlothful, faults by no means common among the inhabitants of China; that, when any of theſe Tartars come to Pekin, and are aſked by the Chineſe the reaſon of theſe differences, they anſwer, that theſe are occaſioned by the ſoil and the water. PARENNIN adds, that this remark ſeems to be more verified in China than in any other country he ever viſited; and that, when following the Emperor in an excurſion to Tartary, as far as the 48th degree of north latitude, he diſcovered Chineſe families, who had migrated from Nankin, and ſettled in that country. The children of theſe people had become perfect Mongous, with their heads ſunk between their ſhoulders, crooked limbs, and a groſs and diſguſting aſpect †. The Japaneſe are ſo ſimilar to the Chineſe, that they may be conſidered as the ſame race of men. Their colour is indeed darker, becauſe they inhabit a more ſouthern climate. They are haughty, warlike, full of vigour, civil, and obliging; but they are a vain and inconſtant people. With incredible patience they ſuſtain hunger, thirſt, cold, heat, and every other hardſhip incident

* Chardin, tom. 3. p. 86.

† Lettres Ediſiantes, Recueil 24.

cident to human nature. Like the Chineſe, they eat their victuals with ſmall ſticks; and they uſe, during their meals, a multitude of ſtrange grimaces and ceremonies. They are laborious and ſkilful artificers; and, in fine, their manners, cuſtoms, and diſpoſitions, are nearly allied to thoſe of the Chineſe.

The ridiculous cuſtom of rendering the feet of their females ſo ſmall that they can with difficulty ſupport their bodies, is common to both nations. Early compreſſion and confinement are ſaid to be the means by which this end is accompliſhed. But it is univerſally allowed, that every woman of faſhion, and every woman who wiſhes to be reckoned handſome, muſt have her feet ſo ſmall that they could eaſily enter the ſhoe of a child of ſix years of age. It may, therefore, upon the whole, be concluded, that the Japaneſe and Chineſe are the ſame race of men; that the commencement of their civilization muſt have been at a very early period; and that they differ more from the Tartars in their manners than in their figure.

The country of Jeſſo, which lies to the north of Japan, is ſituated under a climate which ought to be temperate. It is, however, cold, barren, and mountainous. Its inhabitants are alſo totally different from thoſe of China and Japan. They are a groſs and a brutal race, poſſeſſing neither arts nor manners. Their bodies are thick and ſhort; their hair is long and briſtly; their eyes are black; their forehead is flat; and their colour yellowiſh. Their whole bodies, as well as their faces, are very much covered with hair. They live like ſavages; and their food conſiſts of the blubber and oil of whales, and of other fiſhes. They are exceedingly indolent and ſlovenly. They allow their children to go almoſt naked; and the women employ no other ornament but that of painting their lips and eye-brows

blue. Hunting bears and rein-deer, and fiſhing whales, conſtitute the chief pleaſure and occupation of the men. Though they have ſome Japaneſe cuſtoms, yet, in general, they have a greater reſemblance to the Samoiedes, or to the northern Tartars, than to the natives of Japan.

In viewing the people on the ſouth and weſt of China, we find, that the Cochin-Chineſe, who inhabit a mountainous region which lies ſouth of China, are more ugly and more tawny than the Chineſe.

The Monarch of Cochin-China is abſolute maſter of that extenſive kingdom, which he governs by the aſſiſtance of four principal miniſters, who poſſeſs the power of diſpoſing of all employments, whether civil or military. The houſehold of the Monarch is compoſed of the ſtrongeſt and moſt handſome men who can be found in the kingdom. He is very rich; and his wealth proceeds from a tax paid by all his ſubjects, from the age of nineteen to that of ſixty. The Cochin-Chineſe, when compared with the other Indians, are a brave, active, and induſtrious people. Though they are poor and ignorant, they are lovers of truth. They are, however, extremely polite to ſtrangers, as well as to each other. The Cochin-Chineſe are fond of women; and a man, by their law, may have as many wives as he can maintain. Women, convicted of infidelity, are expoſed to the fury of irritated elephants. The women have not our ideas of modeſty; for they go quite naked to the middle, and bathe promiſcuouſly, and without any ceremony, in the view of the public. The Cochin-Chineſe, in their perſons, have a great reſemblance to the Chineſe, and their women are fair and beautiful.

In this country, the religion is the ſame with that of China. The people

people do homage to Pagodas; and their learned mandarines attend the temple of Confucius, in the ſame manner as thoſe of China. The chief learning of the Cochin-Chineſe is their capacity of reading Chineſe books, and acquiring a knowledge of the principles of morality which they contain. The whole country of Cochin-China conſiſts of chains of mountains; and the intervening valleys are well cultivated. The high mountains are covered with wood, and are the habitation of elephants, tygers, and many other ferocious animals. From theſe mountains, however, they procure honey, wax, ratans, gamboge, and even gold. Mines of this precious metal are very frequent; but, though theſe mines might be very productive, if the natives were induſtrious, and acquainted with the art of mining, they are much neglected. They never dig deeper than the height of a man. 'In the place where I ſaw them at work,' ſays the Abbé ROCHEN, 'maſſes of pure gold, perfectly free from 'the mixture of extraneous bodies, and weighing two ounces, are 'ſometimes found. This gold, collected in duſt or ſmall fragments, 'is afterwards formed into cakes, and carried to market, where it is 'ſold like other merchandiſe *.'

The Tonquineſe, who live under a colder climate, and whoſe country is richer, are more beautiful and handſome. We are informed by DAMPIER, that the Tonquineſe are of a middle ſtature; and that, though tawny, their ſkin is ſo fine and delicate, that the ſmall changes in their complexion from redneſs to paleneſs are eaſily perceptible, a circumſtance which diſtinguiſhes them from all the other Indians. The viſage of the Tonquineſe is flat and oval; their noſe

* Voyage to Madagaſcar, and the Eaſt Indies, by the Abbé Rochon, p. 393. Tranſlat.

noſe and lips well proportioned; their hair long, black, and very thick; and they employ every art to render their teeth black. In the relations ſubjoined to TAVERNIER's voyages, we are told that the Tonquineſe are of a goodly ſtature, and of an olive colour; that they have not the flat faces and noſes of the Chineſe; and that they are, in general, much more handſome.

From the facts above related, it is obvious that theſe nations differ but little from the Chineſe. They reſemble, in colour, the inhabitants of the ſouthern provinces of China. Their being more tawny is owing to the ſuperior heat of their climate; and, though their faces and noſes be more prominent, they may ſtill be conſidered as people who have ſprung from the ſame ſtock. The ſame obſervation is applicable to the natives of Siam, Pegu, Aracan, Laos, &c.; for, though they differ from the Chineſe in colour, yet they differ in a more remarkable manner from the other Indians. According to LOUBERE, the ſtature of the Siameſe is rather ſmall; their bodies are well made; their faces are large, and their cheek-bones prominent; their fore-head contracts ſuddenly, and, like the chin, terminates in a point; their eyes are oblique and ſmall; the white of the eye is yellowiſh; the cheeks are hollow, owing to the great elevation of the upper part of the cheek-bones; the mouth is large, the lips thick, and the teeth black; their complexion is coarſe, being a mixture of brown and red; their noſe is ſhort, and rounded at the point; their ears are naturally large, and are much eſteemed when they are of a remarkable magnitude. All the eaſtern nations diſcover this taſte for long ears. Some draw the lobe of the ear, in order to ſtretch it to a greater length, and pierce it ſo as to allow the admiſſion of an ordinary pendant. Others, as the natives of Laos, ſo prodigiouſly widen the holes in their ears, that a man's hand may be

be thruſt through them: Hence the ears of theſe people often deſcend to the tops of their ſhoulders.

The ears of the Siameſe are naturally larger than ours. They have coarſe, black, ſtraight hair, which both men and women wear ſo ſhort, that, all round the head, it reaches no lower than their ears. They cover their lips with a perfumed ſpecies of pomatum, which gives them an unnaturally pale appearance. Their beards are ſmall, becauſe they conſtantly pull out the hairs. We are informed by STRUYS, that the women of Siam wear ſuch large and heavy pendants in their ears, that the holes gradually become wide enough to admit a man's thumb. He adds, that the colour of both women and men is tawny; that they are not tall, but handſome; and that, in general, they are a mild and poliſhed people. It is remarked by Father TACHARD, that the Siameſe are very agile, and that their country produces dancers and tumblers equally dexterous as any of thoſe in Europe. He farther tells us, that the cuſtom of blackening their teeth originates from the notion of its being unſeemly for men, like the brutes, to have white teeth.

In the kingdoms of Pegu and Aracan, the inhabitants differ not from thoſe of China and Siam, except in their colour, which is ſomewhat blacker *. Large flat foreheads are admired by the natives of Aracan. To procure this ſpecies of beauty, immediately after birth, they apply a plate of lead to the foreheads of their children. Their noſtrils are large and open; they have ſparkling eyes; and their ears are ſo long, that they reſt upon their ſhoulders. Without reluctance, they eat putrified fiſhes, mice, rats, and ſerpents †. The women

* Pigafetta, p. 46.

† Voyages de Ovington, tom. 2. 274.

women are pretty fair, and their ears are as long as thoſe of the men *. The natives of Achen, who lie ſtill farther north than thoſe of Aracan, have likewiſe flat faces and olive complexions: Their manners are groſs: Their boys are allowed to go quite naked; and the girls have only a thin plate of ſilver to prevent their bluſhes †. It is obvious, that all theſe nations differ not much from the Chineſe; and that they reſemble the Tartars in the ſmallneſs of their eyes, their flat viſages, and their olive colour.

In proceeding ſouthward, however, they begin to be much more ſenſibly diverſified. The natives of Malacca, and of the iſland of Sumatra, are ſmall, black, active, and well-proportioned. They go naked from the middle upwards, except a ſmall ſcarf, which they carry ſometimes on one ſhoulder, and ſometimes on the other ‡. Nature has made them brave; and they become very formidable after taking their opium, which produces in them a kind of ferocious intoxication ‖. According to DAMPIER, the inhabitants of Malacca and Sumatra belong to the ſame race: They ſpeak nearly the ſame language; their tempers are fierce and haughty; their ſtature is of a middle ſize; they have long viſages, black eyes, noſes of a moderate bulk, and thin lips. By the frequent chewing of betle, their teeth are dyed black §. In the iſland of Piſſagan, which lies about ſixteen leagues weſt of Sumatra, the inhabitants are tall, and, like the Braſilians, of a yellow colour. They have long ſmooth hair, and go abſolutely naked **. Thoſe of the iſlands of Nicobar, which lie north of

* Recueil des Voyages de la Compagnie Hollandoiſe, tom. 6. p. 251.

† Ibid. tom. 4. p. 63. and le Voyage de Mandelſlo, tom. 2. p. 328.

‡ Les Voyages de Gherardini, p. 46.

‖ Lettres Edifiantes, Recueil, 2. p. 60.

§ Dampier, tom. 3. p. 156.

** Recueil de la Comp. de Holl. tom. 1. p. 281.

of Sumatra, are of a tawny yellowiſh complexion, and go likewiſe perfectly naked *. We are told by DAMPIER, that the natives of the Nicobar iſlands are tall and handſome; that their viſage is long, their hair ſmooth and black, and their noſes of a moderate ſize; that the women pull the hairs from their eye-brows, &c. In the iſland of Sombrero, to the north of Nicobar, the natives are very black, and paint their faces with various colours †. In Malacca, in Sumatra, and the ſmall adjacent iſlands, though the natives differ between themſelves, they differ ſtill more from the Chineſe, Tartars, &c. and ſeem to have ſprung from a different race; yet the natives of Java, who border upon thoſe of Malacca and Sumatra, have no reſemblance to them; but they reſemble the Chineſe, except in colour, which, like that of the Malays, is red mingled with black. PIGAFETTA remarks ‡, that theſe people likewiſe reſemble the natives of Brazil; that their complexion is coarſe; that, though neither of a remarkably large nor ſmall ſtature, they are very muſcular and ſquat; that their faces are flat, and their cheeks flabby and pendulous; that their eye-brows are large, and inclined toward the temples; that their eyes are ſmall, and their beards thin, and very black. We are informed by Father TACHARD, that the people of Java are ſtrong and handſome; that they are active and brave; and that the great heat of the climate obliges them to go naked. It appears, from the Lettres Edifiantes, that the inhabitants of Java are of a purpliſh red colour; and that they are mild, courteous, and familiar.

It is related by FRANCIS LEGAT, that, in Java, the women, who are not ſo much expoſed to the heat of the ſun, are leſs tawny

* Lettres Edifiantes, Recueil, 2. p. 172.

† L'Hiſt. gen. des Voyag. tom. 1. p. 387

‡ Ind. Orient. part 1. p. 51.

than the men; that their countenances are comely, their breaſts prominent and handſome; that their complexion, though duſky, is uniform and beautiful; that they have a delicate hand, a ſoft air, ſparkling eyes, and an agreeable ſmile; and that many of them dance with great ſpirit and elegance *. The Dutch voyagers, in general, agree, that the natives of Java are handſome, nervous, and robuſt; that their viſages are flat, their cheeks prominent and broad, their eyes ſmall, and their eye-lids large, their hair long, and their colour tawny; that their beards are ſcanty; that they wear their nails and hair very long; and that they poliſh their teeth with files †.

From theſe and ſimilar facts, it may be concluded, that the natives of Java have a great reſemblance to the Chineſe and Tartars; and that thoſe of Malacca, Sumatra, and the ſmall iſlands adjacent, differ from them both in form and features. Neither is this phaenomenon ſurpriſing; for it is obvious, that the peninſula of Malacca, the iſlands of Sumatra and Java, as well as the other iſlands in the Indian Archipelago, muſt have received their people originally from the neighbouring nations on the continent. This circumſtance muſt neceſſarily have given riſe to a great variety among the inhabitants, both in colour and features, and in the form of their bodies. For example, in the iſland of Java, there are a people denominated *Chacrelas*, who differ totally from the natives of this iſland, as well as from all the other Indians. They are white and fair, and their eyes are ſo weak, that they cannot bear the rays of the ſun. In the day, they go about with their eyes half ſhut, and directed to the ſurface of the ground; and they ſee beſt during the night ‡.

The

* Les Voyag. de Franc. Legat. tom. 2. p. 130.

† Recueil des Voyag. de la Comp. Holl. tom. 1. p. 392. Mandelſlo, tom. 2. p. 344.

‡ Les Voyag. de Legat. tom. 2. p. 137.

The inhabitants of the Molucca iſlands, PYRARD remarks, have a great reſemblance to thoſe of Sumatra and Java in language, manners, cuſtoms, arms, colour, &c. *. We are informed by MANDELSLO, that the men are rather black than tawny, and that the women are fairer; that their eyes, eye-brows, and eye-lids, are large; that their bodies are ſtrong and robuſt; that they are agile and dexterous; and that they live long. We are likewiſe told by this traveller that each iſland has a language † peculiar to itſelf; and that, therefore, they have probably been peopled by different nations. He adds, that the inhabitants of Bali and of Borneo, are rather black than tawny ‡; but, according to other travellers, they are only brown, like the other Indians ||. It is related by the Dutch travellers, that the natives of the iſland of Banda are remarkable for longevity; that they had ſeen a man aged 130, and many others who approached to that extraordinary period of life; that theſe iſlanders, in general, are very indolent; that the men do nothing but ſaunter about; and that all the laborious offices are performed by the women §.

The inhabitants of Manilla, and of the other Philippine iſlands, by their intercourſe with the Spaniards, the Indians, the Chineſe, the Malabars, the Negroes, &c. are more diverſified, perhaps, than thoſe of any other part of the world. The Negroes, who live in the woods and rocks of Manilla, differ entirely from the other inhabitants. Like the Negroes of Angola, ſome of them have criſped hair,

* Les Voyag. de Pyrard, tom. 2. p. 178.

† Les Voyages de Mandelſlo, tom. 2. p. 378.

‡ Voyag. de Mandelſlo, tom. 2. p. 363.

|| Recueil des Voyag. de la Comp. de Holl. tom. 2. p. 120.

§ Ibid. tom. 1. p. 566.

and, in others, it is long, and their colour conſiſts of various ſhades of black. Among theſe people, like the iſlanders mentioned by PTOLOMY, ſome have been ſeen, it is ſaid, who had *tails* four or five inches in length. For this ſuppoſed fact, the ingenious COUNT DE BUFFON quotes the authority of GEMELLI CARRERI *. BUFFON, it would appear, had been unacquainted with the hiſtory of GEMELLI CARRERI. He was an Italian, and for many years was tortured with the gout. This valetudinarian took a fancy into his head, that, for his own amuſement, he would write ſuppoſititious travels; and, from the aid of books and his own imagination, he compoſed a moſt voluminous work. He writes in the firſt perſon, which induces an unwary reader to believe that CARRERI actually viſited all the people and countries he deſcribes. But the fact is well known, that his imaginary travels were compoſed when ſitting in his elbow chair, with his feet wrapped in flannel. STRUYS is likewiſe quoted as an authority for the exiſtence of tailed-men; but he gives them a more reſpectable tail; for he makes it more than a foot long †: He adds, that this tail was covered with red hair, and was ſomewhat ſimilar to that of an ox. This tailed man, he farther aſſerts, aſſured him, that the tail was a reſult of the climate; for all the natives of the ſouthern part of the iſland had tails. LINNAEUS, and ſome other authors of learning and reſpectability, have given credit to theſe and ſimilar relations.

We are told by DAMPIER, that, in the iſland of Mindanao, one of the principal and moſt ſoutherly of the Philippines, the inhabitants are of a middle ſtature; that their limbs are ſlender, their bodies thin and ſtraight, their viſages oval, their foreheads flat, their eyes ſmall

* Tom. 5. p. 68.

† Voyag. de Struys, tom. 1. p. 100.

ſmall and black, their noſes ſhort, their mouths large, their lips red and thin, their teeth and hair black, their colour tawny and more yellow than ſome of the other Indian tribes; that the women are handſome and fairer than the men; that their viſages are longer, and their features pretty regular, except the noſe, which is flat and ſhort; that their limbs are ſlender, and their hair long and black; and that, in general, the men are alert and ingenious, but much addicted to robbery and idleneſs. From the Lettres Edifiantes, we learn, that the natives of the Philippine iſlands have a reſemblance to the Malays, who formerly conquered theſe iſlands; that the noſe is ſhort, the eyes large, the complexion is of a yellowiſh olive colour, and their language and cuſtoms are nearly the ſame.

The iſland of Formoſa lies to the north of Manilla, and is not far diſtant from the province of Fokien in China. Theſe iſlanders, however, have no reſemblance to the Chineſe. STRUYS tells us, that the men of this iſland, particularly thoſe who live in the mountains, are ſmall in ſtature; that their faces are flat; that the women have full coarſe breaſts, and a beard like the men; that their ears are naturally long, and their length is augmented by heavy ſhells which they uſe as pendants; that their hair is long and black, and their complexion of a blackiſh yellow colour; and that, though inclined to indolence, they are dexterous in managing the bow and the javelin, excellent ſwimmers, and run with incredible ſwiftneſs. With regard to a very extraordinary cuſtom which takes place in this iſland, all travellers are agreed; namely, that the women are not allowed to bring forth children till after the age of thirty-five, though they are permitted to marry long before that period. KEICHTEREN, ſpeaking of this ſtrange cuſtom, expreſſes himſelf in the following manner: 'After marriage, the women are not allowed to be mothers till they

'have

'have completed their thirty-fifth or thirty-ſeventh year. When 'they are pregnant before this period, their prieſteſſes trample with 'their feet upon the women's bellies, and in this manner force them 'to miſcarry; an operation much more painful and dangerous than 'a natural labour. But it is diſgraceful, and even a high crime, to 'allow a child to come into the world before the age preſcribed. 'I have ſeen women who had ſixteen of theſe forced miſcarriages, 'and were only permitted to bring forth their ſeventeenth child *.'

The Ladrone or Mariana iſlands are fartheſt removed from the eaſtern coaſt; they are inhabited by a people rude and unpoliſhed. Till the arrival of the Europeans, Father GOBIEN relates, they had never ſeen artificial fires; and that they were greatly aſtoniſhed when MAGELLAN exhibited to them the wonderful effects of this ſubtile but active element. Their colour is tawny, though rather more fair than that of the natives of the Philippian iſlands; they are a more robuſt race of people than the Europeans; and they are tall and well-proportioned. Though they feed almoſt ſolely on roots, fruits, and fiſhes, they are fat and corpulent; but their corpulency prevents them not from being nimble and active. Their longevity is ſo great, that the age of an hundred years is not eſteemed to be extraordinary among theſe people, without experiencing either diſeaſe or ſickneſs. In general, the hair of theſe iſlanders is criſped †, their noſe and eyes are large, and their complexion is ſimilar to that of the Indians. The natives of Guan, one of theſe iſlands, have long black hair, a large noſe, white teeth, thick lips, a long viſage, and a ferocious

* Les Voyag. de Rechteren dans le Recueil des Voyag. de la Comp. de Holl. tom. 5. p. 96.

† L'Hiſt. des Iſles Marianes, par le P. Gobien.

aſpect. They are alſo very robuſt; and their height, it is ſaid, is often ſeven feet *.

The land of the Papous and New Guinea lie to the ſouth of the Mariana iſlands, and to the eaſt of the Moluccas. We are told by ARGENSOLA, that the Papous are as black as the Caffres; that their hair is criſped; and that their faces are meagre, and have a diſagreeable aſpect. Some of theſe people, however, are as fair as the Germans; but they have weak eyes †. LE MAIRE informs us, that the natives of this country are very black, ſavage, and brutal. They wear rings in their ears and noſes, bracelets of mother of pearl on the wriſts and above the elbows, and cover their heads with bonnets made of the barks of trees, and painted with various colours. They are a robuſt and well proportioned people. In the chace they are exceedingly ſwift; and, as they know not the uſe of iron, clubs, lances, and ſpears made of hard wood, are their only weapons. Like dogs, they employ their teeth as offenſive weapons. The appearance of the women is diſguſtful to Europeans. They have breaſts ſo long that they hang down to the navel, and very prominent bellies. Their limbs and arms are ſmall; their viſages reſemble thoſe of apes; and their features are truly hideous ‡. DAMPIER farther tells, that the inhabitants of the iſland of Sabala, in New Guinea, are a ſpecies of tawny Indians, with long black hair, and whoſe manners differ not from thoſe of the other eaſtern iſles; and that, beſide theſe, who ſeem to be the chief inhabitants of New Guinea, there are likewiſe Negroes with woolly criſped hair ‖.

When

* Dampier, tom. 1. p. 378.; and Cowley's Voyage round the World.

† L'Hiſt. de la Conquête des iſles Moluques, tom. 1. p. 148.

‡ Les Voyag. de la Comp. de Holl. tom. 4. p. 648.; and La Navigation Auſtrale de Jacques le Maire.

‖ Dampier, tom. 5. p. 82.

When mentioning another of theſe iſlands, called *Garret-Denys*, DAMPIER remarks, that the natives are robuſt, black, and well formed; that they have large roundiſh heads, and ſhort criſped hair, which they cut in different faſhions, and paint with various colours; that they have large round faces, and flat broad noſes; that, however, their countenances would not be ſo diſguſting, if they did not thruſt through their noſtrils a peg about an inch thick, and four inches long, each end of which reſts upon their cheek-bones, and a ſmall part of the noſe only appears around this abſurd ornament; and that in their ears ſimilar pegs are worn *.

On the coaſt of New Holland, which is ſituated in the 16th degree of ſouth latitude, the natives are perhaps the moſt miſerable of the human ſpecies, and make it approach neareſt to the condition of brutes. They are erect, meagre, and tall. They have thick eye-brows, a round fore-head, and very large heads. Their eye-lids are perpetually half ſhut, a habit contracted in infancy to defend their eyes from the aſſaults of the gnats; and, as they ſeldom open their eyes, they cannot ſee objects at a diſtance by any other means than by elevating their heads, as if they were looking at ſomething far above their own height. Their noſes and lips are thick, and their mouths are large. It ſhould appear that they pull out the two fore-teeth of the upper-jaw; for in neither ſex, nor at any particular period of life, are theſe teeth to be ſeen. They are beardleſs; their viſage is long, without exhibiting a ſingle agreeable feature; their hair is black, ſhort, and criſped; and their ſkin is equally black as that of the Guinea Negroes. Their only clothing conſiſts of a piece of the bark of a tree tied round their waiſt, with a handful of long herbs placed in the middle. They erect no houſes; and, without

* Dampier, p. 102.

out any covering, they ſleep on the ground. Men, women, and children, aſſociate promiſcuouſly, to the number of twenty or thirty. A ſmall fiſh, which they catch in reſervoirs made with ſtones in arms of the ſea, conſtitutes their chief nouriſhment; and with bread, and every ſpecies of grain, they are totally unacquainted *. In another part of the coaſt of New Holland, about the twenty-ſecond or twenty-third degree of ſouth latitude, the natives appear to be of the ſame race with thoſe now deſcribed. They have the ſame defect in their eyes, and are ugly and diſguſting. Their bodies are tall and ſlender; their ſkin is black, and their hair criſped †.

In a voyage to Botany Bay, in New South Wales, Governour Phillip, commander of a ſquadron fitted out to eſtabliſh a ſettlement for Britiſh felons in that remote region, informs us, that the natives, though in ſo rude and uncivilized a ſtate as not to have hitherto made the ſmalleſt attempt to defend themſelves by clothes from the inclemency of the weather, have ſome ideas of ſculpture. In all the excurſions of Governour PHILLIP in this iſland, or rather immenſe continent, the repreſentations of animals, of ſhields, of weapons of war, and even of men, were ſeen carved upon the rocks. Theſe figures were rough, but completely expreſſed the objects they were intended to repreſent. The figures of fiſhes were frequent; and, in one place, the form of a large lizard was ſketched out with conſiderable accuracy. On the top of a hill, the figure of a man, in the attitude commonly aſſumed by theſe people when they begin to dance, was executed in a ſtill ſuperior manner. The bodies of theſe people, in general, ſmell ſtrongly of oil; and their dark colour is greatly augmented by dirt. They diſcover, however, emotions of diſguſt when they meet with effluvia to which their organs have not been accuſ-

* Dampier, tom. 2. p. 171. † Ibid. tom. 4. p. 134.

tomed. Bread and meat they never refuſe, but generally throw them away ſoon after. But every preſent of fiſh they always accept with avidity. Obſerving the ground to be raiſed in ſeveral places, like a kind of rude graves, Governour PHILLIP had ſome of them opened. In one, a jaw-bone was found not fully conſumed; but, in general, they contained aſhes only. From the poſition of theſe aſhes, it appeared that the body muſt have been laid horizontally, and raiſed from the ground a few inches, or as high as to admit a fire underneath.

Before drawing any general concluſions from all theſe facts and deſcriptions, we ſhall take a curſory view of ſome of the Aſiatic and African nations.

In traits and features, the Moguls, and other natives of the peninſula of India, nearly reſemble the Europeans, except ſome ſlight differences in colour. Though, in the Indian language, *Mogul* ſignifies *white*, the ſkin of the Moguls is olive. The Mogul women are very handſome, and bathe often. They are, like the men, of an olive colour; and, contrary to the common run of European women, their legs and thighs are long, and their bodies ſhort*. We are told by TAVERNIER, that, after paſſing Lahor, and the kingdom of Caſhmire, the Mogul women have no hair on any part of their bodies, and that the men have very ſcanty beards †. The Mogul women, ſays THEVENOT, are chaſte, and very fruitful. They bring forth their children with ſo much eaſe, that they not unfrequently walk the ſtreets the day after they have been delivered. In the kingdom of Decan, he adds, that the men marry at ten, and the women

* Les Voyages de la Boulaye le Gouz, p. 153.

† Voyages de Tavernier, tom. 3. p. 80.

women at eight years of age; and that they frequently have children at this early period of life. But women who have born children ſo ſoon, generally ceaſe to bear after they ſee their thirtieth year, when they become wrinkled, and have all the appearances of old age. Some of theſe women puncture their ſkins in imitation of flowers, and paint them with the juices of plants, which makes the ſkin ſeem to be ſtuffed with flowers *.

In Bengal, the natives are more yellow than the Moguls; and their manners are likewiſe very different. The women of Bengal, inſtead of being chaſte, are thought to be the moſt laſcivious and debauched in all India. In this country, a great ſlave-trade, both of males and females, is carried on; and many eunuchs are made, both by a ſimple privation of the teſtes, and by a total amputation of the parts. The natives of Bengal are beautiful and handſome; they are fond of commerce; and, in their manners, they are exceedingly mild †.

On the Coromandel coaſt, the natives are blacker than thoſe of Bengal; they are alſo leſs civiliſed, and go almoſt naked. On the Malabar coaſt, the natives are ſtill more black. They are of the ſame ſize with the Europeans, and have long, ſmooth, black hair. The women wear gold rings in their noſes; and men, women, and girls, bathe promiſcuouſly in ponds made in the middle of their towns. Though black, or at leaſt exceedingly brown, the women are comely and handſome; and they are often married at the age of eight years ‡.

* Tavernier, tom. 3. p. 34.

† Voyages de Pyrard, p. 34.

‡ Recueil des Voyages, tom. 6. p. 461.

Among the different nations of India, we meet with very ſingular, and often whimſical cuſtoms. The Banians refuſe to eat any thing that has been animated. They are afraid to kill the ſmalleſt inſect, and will not deſtroy the louſe that bites them. To feed the birds, fiſhes, and inſects, they throw rice and other grains upon the ground and into the rivers When they accidentally meet a fiſher or hunter, they earneſtly intreat him to deſiſt from his employment. If he ſtill perſiſts, they offer him money for his gun or his net; and, if he does not comply, to frighten the fiſhes, they trouble the waters; and to put the birds and other game to flight, they raiſe the moſt hideous cries *.

In Calicut, there is a band of nobles, called *Naires*, whoſe ſole profeſſion is that of arms. Though of an olive colour, they are handſome and comely. They are hardy, tall, brave, and very dexterous in the management of their weapons. They lengthen their ears to ſuch a degree, that they hang down to their ſhoulders, and ſometimes even lower. Theſe Naires are allowed to have only one wife; but the women may have as many huſbands as they chuſe. Father TACHARD informs us, that, in the claſs or caſt of Nobles, a woman has ſometimes ten huſbands, whom they conſider as ſlaves ſubjected to their beauty. This privilege is confined to ladies of rank; for women of inferior ſtations are allowed but one huſband. Women of this condition, however, take care to alleviate this ſeeming hardſhip by their intercourſe with ſtrangers, to whoſe embraces they abandon themſelves without reſerve, and their huſbands preſume not to challenge them. The daughters are proſtituted by their mothers even before they arrive at a proper age. The common people of Calicut are ſmaller, worſe ſhaped, and more ugly than the Naires

* Voyages de Struys, tom. 2. p. 225.

Naires or nobles *. Among the latter, ſome men, as well as women, have legs as thick as the body of an ordinary perſon. This deformity is not a conſequence of any accident; for they have it from their birth. The ſkin of theſe legs is rough and hard like a wart. Notwithſtanding this cumberſome deformity, the perſons ſubjected to it are both active and nimble. This thick-legged race have not multiplied greatly either among the Naires or the other Indians. They appear, however, in other places, and particularly in the iſland of Ceylon †.

Though not equally black, the natives of Ceylon reſemble thoſe of the Malabar coaſt ‡. Their ears hang down to their ſhoulders; their aſpect is mild; and they are an alert, dexterous, and vivacious people. The ordinary inhabitants go almoſt naked; and the women, according to a pretty general cuſtom in India, have their boſoms always uncovered ‖. In the northern part of the iſland of Ceylon, we meet with a ſpecies of ſavages called *Bedas*, who occupy a ſmall diſtrict only. The ſpot they inhabit is covered entirely with wood. Here they conceal themſelves in ſuch a manner, that to diſcover any of them is extremely difficult. Their complexion, like that of the Europeans, is fair, and ſometimes red. Their language ſeems to have no analogy with that of any other peculiar to India. They have neither villages nor houſes; and with the reſt of mankind they have no intercourſe. Bows and arrows are their only arms, with which they kill wild boars, ſtags, and other animals. They do not dreſs their meat, but ſeaſon it with honey.

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* Pyrard, p. 411.

† Ibid. p. 416. Recueil des Voyages de la Comp. de Holl. tom. 4. p. 362.

‡ Pigafetta Ind. Orient. part 1. 9.

‖ Recueil des Voyages, &c. tom. 7. p. 19.

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‡ Pigafetta Ind. Orient. part 1. 9.

‖ Recueil des Voyages, &c. tom. 7. p. 19.

Ormus, of Baſcia, and of Balaſcia, are very brown and tawny; while thoſe of Cheſmur, and other provinces of Perſia, where the heat is not ſo intenſe as at Ormus, are fairer; and thoſe of the northern provinces are ſtill more white *. According to the Dutch voyagers, the women in the iſlands of the Gulph of Perſia are brown and yellow, and by no means beautiful. Their viſages are large, and their eyes ugly. They reſemble the Indian women in ſome of their manners and practices, as that of wearing rings in the cartilages of their noſes, and of paſſing a gold pin through the ſkin of the noſe, near the eyes †. This cuſtom of piercing the noſe, and ornamenting it with rings and other trinkets, extends much farther than the Gulph of Perſia; for many of the Arabian women wear rings in their noſes; and the men, by way of gallantry, often ſalute their wives through theſe rings, which are ſometimes large enough to encircle the whole mouth ‡.

We are told by XENOPHON, that the Perſians, in general, were a thick and a fat people. MARCELLINUS, on the contrary, ſays, that, in his time, they were meagre and thin. With this laſt author OLEARIUS agrees, and adds, that they are ſtrong and hardy; that their colour is olive; and that their hair is black, and their noſes aquiline ||. CHARDIN informs us, that the blood of the Perſians is naturally groſs; for the Guebres, a remnant of the antient Perſians, are ugly, ill-made, and rough ſkinned. The inhabitants of the provinces which border upon India, becauſe they never intermix with other

* La Deſcription des Provinces Orientales par Marc Paul, p. 22, 39. Pyrard, tom. 2. p. 256.

† Recueil des Voyages de la Comp. de Holl. tom. 5. p. 191.

‡ Voyage fait par ordre du Roi dans la Paleſtine, par M. D. L. R. p. 260.

|| Voyage d'Olearius, tom. 1. p. 501.

other tribes, are almoſt equally clumſy and deformed as the Guebres. In other parts of the kingdom, however, the blood of the Perſians is now highly refined by frequent alliances with the Circaſſians and Georgians, two nations who, in perſonal beauty, ſurpaſs all the world. In Perſia, there are few men of rank who have not been produced by Circaſſian or Georgian mothers. Even the King himſelf, on the female ſide, is generally ſprung from one or other of theſe nations. As it is many ages ſince this mixture commenced, the Perſian women have become, though they do not rival the ladies of Georgia, extremely beautiful and handſome. The men are, in general, erect and tall; their complexion is ruddy and vigorous, and they have an engaging deportment and a graceful air. The mildneſs of the climate, joined to their temperate mode of living, contribute greatly to improve the beauty of their perſons. This quality they do not inherit from their fathers; for, without the aid of commixture with fine women from other countries, the Perſian men of rank, who are deſcendants of the Tartars, would be very deformed and ugly. But now the Perſians are a refined and an ingenious people. Their imagination is extremely fertile. Though warlike, they are very fond of the arts and ſciences. Their tempers are ſoft and ductile, and they are vain and ambitious of praiſe. They are exceedingly voluptuous, and much addicted to gallantry. They are prodigal and luxurious; and, to commerce and oeconomy, they are equally ſtrangers *.

In Perſia, fine women, of all complexions, are common. On account of their beauty, they are imported thither by the merchants from every country. The white women are brought from Poland, Ruſſia, Circaſſia, Georgia, and the frontiers of Great Tartary. The tawny

* Chardin, tom. 2. p. 34.

females are tranſported from the dominions of the Mogul, and from the kingdoms of Viſapore and Golconda, and the blacks from Melinda and the coaſts of the Red Sea *. The inhabitants of Perſia, Turkey, Arabia, Egypt, and of Barbary, in the time of Mahomet and his ſucceſſors, extended their dominions by invading immenſe territories, and, by intermixing with the natives of all theſe regions, became exceedingly diverſified both in manners and appearance. The Turks, the Perſians, and the Moors, have acquired a conſiderable degree of civilization and poliſhed manners. But the Arabs, in general, ſtill continue in a ſtate of rudeneſs, and of lawleſs independency. Like the Tartars, the Arabs roam about from place to place, without any government or law, and almoſt without any ſocial intercourſe. Their chiefs authoriſe rape, theft, and robbery. They have no eſtimation for virtue, and glory in almoſt every ſpecies of vice. Though inured to labour, the Arabs live in extreme miſery. They have neither bread nor wine; neither do they cultivate the ground. Inſtead of bread, they uſe ſome wild grain, which they mix with the milk of their cattle †. They keep flocks of ſheep, goats, and camels, which they lead from place to place till they meet with a ſufficient paſture. Here they erect their tents, and live with their families till the graſs is conſumed, when they decamp, and go in queſt of another fertile ſtation ‡. Though their mode of living be uncomfortable, and their food very ſimple, the Arabs are a robuſt and a ſtrong people: Their ſtature is not diminutive, and they are, in geral, pretty handſome. But as moſt of them go either entirely naked, or ſlightly covered with a tattered ſhirt, their ſkins are ſcorched with the heat of the ſun ‖.

Thoſe

* Tavernier, tom. 2. p. 368.

† Les Voyages de Villamon, p. 603.

‡ Thevenot, tom. 1. p. 330.

‖ Voyages de Villamon, p. 604.

Thoſe who inhabit the coaſts of Arabia Felix, and the iſland of Socotora, are of a ſmaller ſtature, and their complexions are aſh-coloured or tawny. The Arabs paint their lips, arms, and the moſt conſpicuous parts of their bodies, with a deep blue colour *. This paint, which they lay on in little dots, and make it penetrate the fleſh by puncturing the ſkin with needles, can never be effaced †. This cuſtom is alſo frequent among the Negroes who carry on trade with the Mahometans. The Arabian girls who live on the frontiers of Tunis and Tremeſen, to improve their beauty, paint their bodies with cyphers of a blue colour. This effect they produce by means of vitriol and the point of a lancet. In this practice they are followed by the country Africans, but not by thoſe who live in towns. Some of theſe, indeed, paint a ſmall flower on the fore-head, their cheek, or their chin, with the ſmoke of galls and ſaffron, which produces a fine black. They likewiſe blacken their eye-brows ‡. The Arabian women of the Deſert, La Boulaye informs us, paint their hands, lips, and chin, of a blue colour; that, in general, they wear rings of gold or of ſilver, about three inches diameter, in their noſes; that, though born fair, their complexions are injured by a continual expoſure to the ſun; and that the young girls are very agreeable, and ſing almoſt perpetually ‖.

'The Arabian princeſſes and ladies,' another traveller tells us, 'whom I was permitted to ſee, were extremely handſome, beautiful, 'and fair, becauſe they are always covered from the ra s of the 'ſun. But the common women, beſide their tawny complexions,

* Pigafettae Ind. Orient. part 1. p. 25.

† Voyages de Pietro della Valle, tom. 2. p. 269.

‡ L'Afrique de Marmol, tom. 1. p. 88.

‖ Voyages de la Boulaye le Gouz, p. 318.

'are very much blackened by the ſun; their form is exceedingly 'diſagreeable; and, except thoſe natural attractions which always 'accompany youth, I could never perceive any thing in their ap- 'pearance that could pleaſe the fancy. Theſe women puncture 'their lips with a kind of needles, and cover them with gun-powder 'and the gall of oxes, which penetrate the ſkin, and render them blue 'and livid during life. They employ the ſame art on the angles of 'the mouth, on each ſide of the chin, and upon the cheeks. They 'paint the eye-lids with a black powder, and draw a black line from 'the corner of each eye, with a view to make them appear more 'expanded; for the chief beauty of the eaſtern women conſiſts in 'large and prominent eyes. Among the Arabs, female beauty is 'expreſſed by ſaying that ſhe has the eyes of the antelope. They 'always compare their miſtreſſes to this ſprightly animal; and black 'eyes, and the eyes of the antelope, are the principal topics of their 'love-ſongs. The antelope is indeed a moſt beautiful, and a hand- 'ſome creature. In its aſpect it has a degree of innocent timidity, 'which has a great reſemblance to the modeſty and apprehenſion 'natural to young women. They puncture their arms and hands, 'and form upon them the figures of animals, &c. and paint their 'nails of a reddiſh colour. With the ſame colour, the men likewiſe 'paint their hair and the tails of their horſes. The women pierce 'their ears in ſeveral places, to which they hang rings and broaches. 'They alſo wear bracelets on their arms and legs *.' To this account it may be added, that the Arabs are very jealous of their wives; and that, though they either purchaſe them, or carry them off by force, they treat them with gentleneſs and reſpect.

Though adjacent to the Arabs, and though governed by ſimilar laws,

* Le Voyage fait par ordre du Roi dans la Paleſtine, par M. D. L. R. p. 260.

laws, the Egyptians have very different manners and cuſtoms. For example, in all the towns and villages along the Nile, there are young girls deſtined by the public for the pleaſure of travellers, without any obligation to pay for the indulgence. For this ſtrange ſpecies of hoſpitality they have houſes filled with theſe girls; and with rich men, when about to die, it is reckoned a pious deed to found and endow houſes for this charitable purpoſe. The Egyptian women are very brown, but have fine lively eyes. They are pretty tall; their dreſs is not agreeable; and, in their converſation, they are exceedingly tireſome *. They are ſaid to be very prolific †. Notwithſtanding the many ſalubrious qualities aſcribed to the periodical overflowings of the Nile, GRANGER tells us, that the air of Egypt is unfavourable to health; that diſeaſes of the eyes are very frequent, and ſo difficult to cure, that the patients generally loſe their ſight; that there are more blind perſons in Egypt than in any other country; and that, during the overflowings of the Nile, the greateſt part of the inhabitants are tormented with obſtinate and deleterious dyſenteries ‡.

The Egyptians of both ſexes are generally of an olive colour; and, the higher we aſcend from Cairo, the people become more tawny, till we arrive at the confines of Nubia, where they are nearly as black as the Nubians themſelves. The principal vices of the Egyptians are idleneſs and cowardice. During the day, their chief employment is drinking coffee, ſmoaking tobacco, ſleeping, and chattering in the ſtreets. Though groſsly ignorant, they are fantaſtically vain, affect to deſpiſe all other nations, and are much offended when any

* Les Voyages du P. Vanſleb. p. 43.

† Les Voyages du Sieur Lucas, p. 83.

‡ Ibid. tom. 3. p. 194.; and P. Vanſleb. p. 42.

any perſon adviſes them to ſend their children to Europe for inſtruction in the arts and ſciences *.

The nations on the coaſts of the Mediterranean Sea, from Egypt to the Weſtern Ocean, and thoſe who inhabit the internal regions of Barbary, as far as Mount Atlas, conſiſt of various races, as thoſe of the original natives, Arabs, Vandals, and Spaniards. In more ancient times, the Romans and Egyptians peopled theſe territories with men of very different qualities. For example, the inhabitants of the mountains of Arras have no reſemblance in their aſpect and complexion to the adjacent tribes. Inſtead of being tawny, their complexion is white and ruddy; and their hair is of a deep yellow; but that of the neighbouring nations is black. From theſe and ſimilar circumſtances, Dr SHAW thinks it probable that they are deſcendents of the Vandals, who, after their expulſion, took refuge in parts of theſe mountains †. In the kingdom of Tripoli, the women, though adjacent to thoſe of Egypt, have not the ſmalleſt reſemblance to them. The former are tall, and conſider height of ſtature as an eſſential characteriſtic of beauty.

It is an affectation among the Mooriſh women to have their hair ſo long as to reach to their heels; and thoſe whoſe hair is ſhorter, uſe falſe locks ornamented with ribbons. They paint the hair of their eye-lids with black lead, and conſider the dark colour produced by it as a great mark of beauty. This cuſtom is both general and very ancient: It was practiſed by the ladies of Greece and of Rome, as well as by thoſe of the Eaſt ‡. Even in Europe, the Mooriſh would be reckoned handſome. The ſkin of their children is

* Lucas, tom. 3. p. 194.; and P. Vanſleb. p. 42.

† Shaw's Travels. ‡ Ibid.

is very fair and delicate; and though, by expoſure to the ſun, the boys ſoon become ſwarthy; yet the girls, by keeping more within doors, preſerve their beauty till the age of thirty, when they generally ceaſe to bear children. As a recompenſe for this early ſterility, they are often mothers at the age of eleven, and grandmothers at that of twenty-two; and, as they live as long as the Europeans, they commonly ſee ſeveral generations *. From MARMOL's deſcription of theſe different countries, it appears, that, in Barbary, the inhabitants of the mountains are white, and that thoſe of the plains and ſea-coaſts are brown and tawny †. With regard to the Numidians, he informs us, that they are rather tawny than black; that, though the men be meagre, the women are pretty fair and jolly ‡; but that the natives of Guaden, at the extremity of Numidia, and on the frontiers of Senegal, are rather black than tawny ‖; that, on the contrary, the women of the province of Dara are freſh-coloured and beautiful §.

From the above hiſtorical enumeration, it appears, that all the people who live between the 20th and 35th degree of north latitude, that is, from the Mogul empire to Barbary, and even from the Ganges to the weſtern coaſt of Morocco, differ not much from each other, except in ſuch varieties as have ariſen from intermixtures with more northern nations, who have occaſionally conquered and over-run ſome of thoſe vaſt regions. In this extenſive territory, which ſtretches, nearly within the ſame parallels, about two thouſand leagues, the people are brown or tawny, but pretty handſome and comely. If, in the next place, we ſcrutinize thoſe who live under more temperate climates, we ſhall find, that the inhabitants of the northern

* Shaw's Travels.

† Marmol, tom. 2. p. 536. ‡ Ibid. tom. 3. p. 6

‖ Ibid. p. 7. § Ibid. p. 11.

northern parts of the Perſian and Mogul empires, the Armenians, the Turks, the Mingrelians, the Georgians, the Circaſſians, the Greeks, and the Europeans in general, are not only the faireſt, but the moſt handſome people on this globe; and that, however remote Caſhmire may be from Spain, or Circaſſia from France, the natives of thoſe countries, who are nearly at equal diſtances from the equator, have a great reſemblance to each other. BERNIER remarks, that the people of Caſhmire are famous for their beauty. They are equally handſome as the Europeans, and have not a feature peculiar to the Tartarian race. Their women are beautiful; and it is a common practice with ſtrangers, when they viſit the Mogul court, to marry Caſhmirian women, in order to procure children by them as fair as genuine Moguls *.

The blood of Georgia is ſtill more refined than that of Caſhmire. In the former country, an ugly countenance is hardly to be ſeen. With regard to the Georgian women, Nature has adorned them with a profuſion of graces. They are ſlender-waiſted, tall, handſome, and their faces are extremely beautiful †. The men are alſo very handſome ‡. Nature has made them ingenious; and, if neglect of proper education, joined to debauched manners, did not render them very ignorant, they might make a conſiderable progreſs in the arts and ſciences. But there is not a country, perhaps, in the univerſe, where libertiniſm and drunkenneſs have arrived at a degree ſo diſgraceful as in Georgia. We are told by CHARDIN, that even the clergy are much addicted to wine; and that they keep a number of female ſlaves, whom they uſe as concubines. That he was informed,

* Voyage de Bernier, tom. 2. p. 281.

† Chardin, p. 204.

‡ Il Genio vagante del Conte Aurelio degli Anzi, tom. 1. p. 170.

informed, he adds, by the prefect of the Capuchins, that the Patriarch of Georgia openly declares, that the man who does not intoxicate himſelf at their great feſtivals, as thoſe of Chriſtmas and Eaſter, is unworthy of the name of a Chriſtian, and deſerves to be excommunicated from the church *. However, notwithſtanding all theſe vices, the Georgians are a civil, grave, humane, and peaceable people.

It is remarked by STRUYS, that the women of Circaſſia are alſo exceedingly fair and beautiful. Their complexion exhibits the moſt delicate tints. Their fore-heads are ſmooth and large. Without the aſſiſtance of art, their eye-brows are ſo fine, that they have the appearance of curved threads of ſilk. Their eyes are large, alluring, and full of animation. Their noſes are handſome, and their lips are vermilion itſelf. Their mouths are ſmall, but the perpetual reſidence of ſmiles. Their chins are the termination of the moſt perfect oval. Their throat and neck are extremely handſome; and their ſkin is as white as ſnow. Their hair is of a beautiful black colour. Their ſtature is tall, and their movements graceful. They wear a ſmall black cap, upon which they faſten a roller of the ſame colour. But the widows, inſtead of this roller, wear the bladder of an ox fully blown up with air, which gives them a ludicrous appearance. The women of inferior ſtation, in ſummer, wear a ſhift only, which is commonly blue, red, or yellow, and open to the middle of the body †.

We are informed by TAVERNIER, that the women of Circaſſia and Comania, like thoſe of Georgia, are extremely handſome; that

* Chardin, p. 205.

† Struys, tom. 2. p. 75.

they preſerve the freſhneſs of their complexions till the age of forty-five or fifty; and that they are all induſtrious, and frequently employed in the moſt laborious offices. Some of their laws with regard to marriage are ſingular. If a huſband is diſpleaſed with his wife, and makes the firſt complaint, the ſuperintendant of the diſtrict ſends for the wife, ſells her, and procures another for the huſband. The ſame privilege is enjoyed by the wife if ſhe makes the firſt complaint *.

According to the relations of travellers, the Mingrelians are equally handſome and beautiful as the Circaſſians or Georgians, and ſeem to belong to the ſame race of people. 'In Mingrelia,' CHARDIN remarks, 'there are women extremely handſome, of a majeſtic air, 'whoſe form and viſage are enchanting, and their aſpect attracts 'every beholder. Thoſe who are leſs handſome, or advanced in 'years, daub their fore-head, eye-brows, cheeks, noſe, and chin, 'with a coarſe paint. Others paint their eye-brows only, and are 'very attentive to their dreſs, which reſembles that of the Perſians. 'They uſe a veil, which covers only the crown and back part of the 'head. Though lively, civil, and affectionate, they are very perfi-'dious; for there is no wickedneſs which they will not perpetrate, 'in order to procure, to preſerve, or to get rid of their gallants. 'The men likewiſe poſſeſs many bad qualities. All of them are 'trained to robbery, which they ſtudy both as a buſineſs and an 'amuſement. With great ſatisfaction they relate the depredations 'they have committed; and, from this polluted ſource, they derive 'their greateſt praiſe and honour. In Mingrelia, falſehood, aſſaſſi-'nation, and theft, are good actions; and whoredom, bigamy, and 'inceſt, are eſteemed as virtuous habits. The men marry two or 'three

* Tavernier, tom. 1. p. 469.

'three wives at a time, and keep as many concubines as they chuſe. 'In this country, huſbands are not jealous of their wives. When a 'wife is detected in the act of infidelity, he has only a right to de- 'mand a pig from the gallant, who commonly eats a ſhare of it in 'company with both huſband and wife. To have many wives and con- 'cubines they conſider as a laudable practice; becauſe it enables them 'to beget the greater number of children, whom they either ſell for 'gold, or exchange for wares and proviſions *.' The Mingrelian ſlaves are not very dear. A man, from twenty-five to forty years of age, may be purchaſed for fifteen crowns; and, when farther advanced, for eight or ten. The fineſt girls, from thirteen to eighteen, coſt twenty crowns only, a woman about twelve, and children only three or four †.

The Turks, who purchaſe great numbers of theſe female ſlaves, are ſo intermixed with Armenians, Georgians, Arabians, Egyptians, and Europeans, that it is almoſt impoſſible to diſtinguiſh the original natives of Aſia Minor, Syria, and the reſt of Turkey. The Turks, in general, are robuſt, and pretty well made ‡. Among theſe people, crooked or deformed individuals are rarely to be ſeen. Moſt of their women are alſo very handſome and beautiful. They are exceedingly fair, becauſe they ſeldom go abroad, and never without their veils ‖. 'There is not,' ſays BELON, 'a woman in Aſia, however 'mean her condition in life, who has not a complexion freſh as a 'roſe, and whoſe ſkin is not fair, delicate, and as ſmooth as velvet. 'Before they go to bathe, they make an unguent of Chian earth, 'with which they anoint their whole bodies. Some of them paint 'the eye-brows of a black colour; and others eradicate the hairs

* Chardin, p. 77.
† Ibid. p. 105.
‡ Thevenot, tom. 1. p. 55.
‖ Ibid. tom. 1. p. 105.

'with ruſma, and paint artificial eye-brows in the form of a black 'creſcent, which gives them a beautiful appearance at a diſtance, 'but, when viewed more near, they are very ugly. This cuſtom, how-'ever, is extremely antient*.' He adds, that, in Turkey, neither males nor females ſuffer the hair to grow on any part of their bodies, except on the head and chin; that they compoſe an ointment of equal quantities of ruſma and quick-lime, diluted in water, which they apply immediately before entering the warm bath; that, when they begin to ſweat, the hairs fall off by rubbing with the hand, and the ſkin remains ſmooth and ſoft, without the ſmalleſt veſtige of hair †. In Egypt, he farther remarks, there is a ſhrub called *alcanna*, the leaves of which, when dried and pounded, make a yellow or reddiſh paint, with which the women tinge their hair, hands, and feet ‡.

The Turkiſh women, to make their eye-brows of a deeper black, employ a preparation of tutty. They bathe often, uſe perfumes, and exert every effort to improve their beauty. The preſent natives of Judea reſemble the other Turks. But they are more ſwarthy than thoſe who live in Conſtantinople, or on the coaſts of the Black Sea, in the ſame manner as the Arabians are browner than the Syrians, becauſe they inhabit a more ſouthern climate. This obſervation is equally applicable to the Greeks: The inhabitants of the northern diſtricts are fairer than thoſe of the iſlands, or of the ſouthern provinces. The Greek women, in general, are ſtill more beautiful and vivacious than the Turkiſh. The Greeks eſteem large eyes, and elevated eye-brows, in either ſex, as great points of beauty ‖; and, it is not unworthy of remark, that, in all the medals and buſts of

* Obſerv. de Pierre Belon, p. 199. † Ibid. ‡ Ibid. p. 136.

‖ Obſerv. de Belon, p. 200.

of the antient Greeks, the eyes are much larger than in thoſe of the antient Romans.

The inhabitants of Greece, of Naples, of Sicily, of Corſica, of Sardinia, and of Spain, who are ſituated nearly under the ſame latitude, have complexions extremely ſimilar. All theſe people are more ſwarthy than the French, the Britiſh, the Germans, the Moldavians, the Circaſſians, and the other natives of the northern parts of Europe, till we arrive at Lapland, where, as formerly remarked, we meet with men of a very different appearance. The Spaniards, though meagre, are a handſome people. Their features are regular, and their eyes beautiful: But their complexion is ſwarthy and yellowiſh. Their children, ſome time after birth, continue to be fair; but the operation of the ſun and air ſoon renders them yellow and tawny *.

We are informed by LINNAEUS, that the Goths are tall; that their hair is as white as ſilver; and that the iris of their eye is bluiſh. He adds, that the Findlanders are muſcular and fleſhy; that their hair is of a whitiſh yellow colour; and that the iris of the eye is of a deep yellow †. The women of Sweden are ſaid to be very prolific. RUDBECK tells us, that the Swediſh women generally produce eight, ten, or twelve children; and that eighteen, twenty, twenty-four, and even thirty, are not uncommon. That the men, he adds, often exceed the age of a hundred years; that ſome of them arrive at a hundred and forty; and that one lived a hundred and fifty-ſix, and another a hundred and ſixty-one years ‡. The author of the *Hiſtorical Voyages of Europe* confirms the obſervation of RUDBECK, that

* Relation du Voyage d'Eſpagne, p. 187.

† Linn. Faun. Suec. p. 1.

‡ See Olaii Rudbekii Atlantica.

that the Swedes are more famous for longevity than any other nation of Europe. He adds, that he ſaw ſeveral men who, he was aſſured by good authority, exceeded their hundred and fiftieth year *. He aſcribes this longevity of the Swedes to the ſalubrity of the air. With regard to Denmark, he makes the ſame remark: The Danes, ſays he, are robuſt and tall; of a lively and florid complexion, and, from the wholeſomeneſs of the air they reſpire, live to great ages: The Daniſh women are likewiſe fair, handſome, and very prolific †. Previous to the reign of CZAR PETER I. the Ruſſians were almoſt completely barbarous. They were born ſlaves; they were groſsly ignorant, brutal, cruel, and had neither courage nor urbanity of manners. Men and women went promiſcuouſly into the hot baths; and, like the Laplanders, after coming out of theſe baths, which were uncommonly hot, plunged themſelves into cold water. Their food was extremely coarſe ‡. But, even at this unrefined period, the women had the addreſs to colour their cheeks, to pull the hairs from their eye-brows, and to paint artificial ones. The Carelians and Ingrians, who inhabit the northern parts of Muſcovy, have conſtitutions vigorous and robuſt. In general, their hair is white or fair ||. They reſemble the Findlanders, and ſpeak the ſame language.

The nations who inhabit the northern parts of Africa, from the Mediterranean to the Tropic, have already been deſcribed. The people beyond the Tropic, from the Red Sea to the Ocean, a vaſt extent of country, are a kind of Moors; but they are ſo ſwarthy, that they ſeem to be almoſt black. In general, the men are very brown; the women are ſomewhat fairer, well-made, and do not want beauty.

* Les Voyages Hiſtoriques de l'Europe, tom. 8. p. 229. † Ibid. tom. 8. p. 279

‡ Relation curieuſe de Muſcovie, p. 181.

|| Nouveaux Memoires ſur l'Etat de Grand Ruſſie, tom. 2. p. 64

ty. There is a great number of Mulattoes among theſe Moors, who are of a blacker colour; becauſe they are produced from Negroe women, who are purchaſed by the Moors, and with whom they have many children *. Under the 17th or 18th degree of north latitude, we meet with the Negroes of Nubia and of Senegal, both on the coaſt of the Red Sea, and on that of the weſtern ocean. From the 18th degree of north to the 18th of ſouth latitude, the whole inhabitants of Africa, except the Æthiopians or Abyſſians, are perfectly black. Hence that portion of the globe occupied by this race of men comprehends an extent of territory, parallel to the Equator, of about nine hundred leagues in breadth, and conſiderably more in length: Beyond the 18th or 20th degree of ſouth latitude, however, the natives ceaſe to be negroes.

The natural colour of the Ethiopians is brown or olive, like that of the ſouthern Arabs. They are tall, and have regular features, fine eyes, well proportioned noſes, thin lips, and white teeth. The Nubians, on the contrary, have flat noſes, thick lips, and their ſkin is extremely black †. Theſe Nubians are a ſpecies of Negroes, and have a great reſemblance to thoſe of Senegal. The Ethiopians are a half poliſhed people. They wear garments of ſilk and of cotton. They are very negligent in the culture of their lands; becauſe the citizens and vulgar are oppreſſed and plundered by the nobles. Each of theſe claſſes live ſeparately in their own hamlets or villages. They are fond of crude victuals; and the ſecond courſe in their feaſts conſiſts of raw fleſh, which they conſider as the greateſt delicacy. They have vines, but they make no wine. Their only beverage is an acid compoſition of tamarinds and water. Their knowledge

* Marmol, tom. 3. p. 29, 33.

† Lettres Edifiantes, Recueil 4. p. 349.

knowledge of the arts and ſciences is very limited; for their language is rude, and their mode of writing ſo imperfect, that they require ſeveral days to finiſh a common letter, though the characters of their alphabet are more beautiful than thoſe of the Arabians *.

Admiral DRAKE, in his voyage round the globe, mentions a ſingular fact, which has ſince been confirmed by HASSELQUIST. On the frontiers of the deſart of Ethiopia, he tells us, there are men called *Acridophagi*, or locuſt-eaters. They are black, meagre, very nimble, and of ſmall ſtature. During the ſpring, infinite numbers of locuſts are tranſported into their country by hot winds which blow from the weſt. As they have neither cattle nor fiſh, they are under the neceſſity of feeding upon theſe locuſts, of which they amaſs vaſt quantities. Theſe they cure with ſalt, and preſerve them for food through the whole year. This miſerable ſpecies of nouriſhment is ſaid to produce ſtrange effects: Theſe men ſeldom reach the age of forty years. When they approach to this period of life, caterpillars are engendered under their ſkin, which at firſt create a great itching, become ſo prodigiouſly numerous, that their whole fleſh ſwarms them. Theſe inſects firſt devour the belly, then the breaſt, and continue their ravages till they eat the whole fleſh from the bones.

In that tract of Ethiopia, which ſtretches to Cape Gardufu, there are immenſe deſarts. This eaſterly part of Ethiopia is almoſt entirely uninhabited. Ethiopia is bounded on the South by the Bedwins and ſome other nations, all of whom obſerve the Mahometan law, which corroborates the opinion, that the Ethiopians have originally ſprung from the Arabians, who have even ſpread themſelves along the coaſts of Melinda; for the inhabitants of theſe coaſts are only tawny,

* Voyages de Comp. de Holl. tom. 4. p. 34.

tawny, and follow the religion of Mahomet *. The natives even of Zanguebar are not black, and moſt of them ſpeak the Arabic language. This country, though it lies under the Torrid Zone, is not exceſſively hot; and the hair of the natives, like that of the Negroes, is black and criſped †. Upon the whole of this coaſt, as well as in Moſambique and Madagaſcar, we find ſome white men, who muſt unqueſtionably have originated from other countries.

To form a juſt idea, however, of the varieties to be met with among theſe black nations requires a more minute examination. Upon comparing the teſtimonies of travellers, it appears, in the firſt place, that the varieties among the blacks are as numerous as thoſe among the whites. Both have their Tartars and Circaſſians. The natives of Guinea are very ugly, and emit an intolerable odour. Thoſe of Sofala and Moſambique have no bad ſmell, and are very beautiful. The blacks, therefore, may be divided into two different and principal races, that of the Negroes, and that of the Caffres. The firſt comprehends the blacks of Nubia, Senegal, Cape Verd, Gambia, Sierra-Leone, the Teeth and Gold Coaſts, that of Juda, Benin, Gabon, Loango, Congo, Angola, and of Benguela, as far as Cape Negro. Under the ſecond may be comprehended all the nations from Cape Negro to the point of Africa, where they are known by the appellation of *Hottentots*, and all thoſe on the eaſtern coaſt, within the ſame latitude, as the territories of Natal, Sofala, Monomotapa, Moſambique, and Melinda: The blacks of Madagaſcar and of the adjacent iſlands are likewiſe not Negroes, but Caffres. Theſe two races of men differ more from each other in colour than in features, hair, ſkin, or odour: Their diſpoſitions and manners are alſo very differ-

* Pigafetta, p. 56.

† Marmol, p. 107.

ent. On a closer examination of the people who constitute these two races, we shall find as many varieties among the blacks as among the whites, and an equal number of shades from brown to black as, in the other race, from brown to white.

To begin with the nations and countries to the north of Senegal, and, proceeding along the coasts, the different people which have been described by travellers shall be separately described.

It is certain, in the first place, that the natives of the Canary islands are not negroes; for it is ascertained by voyagers, that the original inhabitants of these islands were tall, handsome, and of a vigorous complexion; that the women were beautiful, and had fine hair; and that the inhabitants of the southern parts of each island were more olive than those of the northern *. In the history of his voyage to Lima, DURET informs us, that the antient inhabitants of the island of Teneriff were robust and tall, but tawny and meagre, and that, in general, their noses were flat †. These people, we see, possessed nothing in common with the Negroes, if their flat noses be excepted. In the same latitude with these islands, the natives of Africa are Moors. They are very tawny; but, like the islanders, they belong evidently to the race of whites.

At Cape Blanc, the inhabitants are Moors, and follow the Mahometan religion. They wander, like the Arabs, from place to place, pasturing their camels, horses, oxen, goats, and sheep. They carry on a traffic with the Negroes, who give them two or three slaves for

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* L'Histoire de la premiere decouverte des Canaries, par Bontier et Verriere, p. 251.

† L'Hist. gen. des Voyages, par M. l'Abbé Prevot, tom. 2. p. 230.

a camel, and eight or ten for a horſe *. Theſe Moors ſupply us with gum Arabic, which they have a practice of diſſolving in their milk. They ſeldom uſe fleſh as a diet, and never kill their cattle till they are about to die of diſeaſe or of old age †. The river Senegal divides the Moors from the Negroes. The Moors, who inhabit the north ſide of this river, are only tawny; but the Negroes, who live on the ſouth ſide of it, are perfectly black. The Moors wander about with their flocks; but the negroes are ſtationary, and dwell in villages. The former are free and independent; but the latter are the ſlaves of cruel tyrants. The Moors are meagre, ſmall in ſtature, and have a puny aſpect; but they are a ſly and an ingenious people. The negroes, on the other hand, are large, plump, and well-proportioned; but they are a ſimple and a ſtupid race.

Both on the ſouth and north ſides of the river Senegal, there is a ſpecies of men diſtinguiſhed by the appellation of *Foulies*, who form a ſhade between the Moors and Negroes, and, perhaps, have been produced by a commixture of the two nations. Theſe Foulies are not ſo black as the Negroes, but much more brown than the Moors; and thus hold a middle rank between the two. They are alſo more civilized than the negroes, follow the religion of Mahomet, and are hoſpitable to ſtrangers ‡.

Mulattoes form the chief inhabitants of the Cape de Verd iſlands. They ſprung from the Portugueſe who originally ſettled there and the native Negroes of theſe iſlands. They are called *Copper-coloured Negroes*; becauſe, though their features are the ſame with thoſe of the Negroes, they are not ſo black, but of a yellowiſh colour. They are a handſome and an ingenious people, but very idle and indolent.

* Voyage du le Maire, p. 46. † Ibid. p. 66. ‡ Ibid. p. 75.

They procure their food chiefly by fiſhing and hunting. Their dogs are trained to kill the wild goats, which are very numerous in thoſe iſlands. Their wives and daughters are delivered, without reluctance, to the embraces of ſtrangers, for preſents of very ſmall value *.

The ſouthern banks of the Senegal exhibit the firſt genuine Negroes. Theſe people, as well as thoſe who live in that tract of country comprehended between this river and that of Gambia, diſtinguiſh themſelves by the name of *Jaloffs*. They are exceedingly black, handſome, and of a goodly ſtature. Their aſpect is by no means ſo diſagreeable as that of the other Negroes. The features of ſome of them, and particularly thoſe of the women, are very regular. They entertain the ſame ideas of beauty as the Europeans; for they are fond of fine eyes, ſmall mouths, thin lips, and well proportioned noſes. They differ, however, with regard to the baſis of the picture; for they eſteem a black ſhining colour as indiſpenſibly neceſſary to conſtitute a beauty. Their ſkin is very ſoft and fine; and, if we abſtract our prejudices in favour of particular colours, their women are as beautiful as in any other country in the world. In general, their females are handſome, gay, active, and amorous to an extreme degree. They ſhow a particular attachment to white men, whom they careſs with ardour, both to gratify themſelves, and in the hope of procuring preſents. In their intercourſe with foreigners, their huſbands lay them under no reſtraint. But, though they offer their wives, daughters, and ſiſters to ſtrangers, and think their honour injured by a refuſal; yet, when their wives tranſgreſs with men of their own nation, their jealouſy excites ſuch ferocity of paſſion, that they not unfrequently beat, and even cut themſelves with ſabres.

* Voyages de Roberts, p. 387.

ſabres. Thoſe women, notwithſtanding, ſeldom want a tobacco-pipe out of their mouths; and, when heated, their ſkin emits a diſagreeable odour, though not ſo offenſive as that of the other Negroes. They are fond of dancing to the ſound of the drum and calabaſh. In theſe dances, all their movements conſiſt of laſcivious poſtures. They bathe often, and file their teeth, in order to make them more equal. Moſt of the young women engrave figures of animals, flowers, &c. on their ſkin, a practice common in Otaheite and other iſlands in the ſouthern ocean.

Among the Negroe women, when travelling, it is a general practice to carry their children on their backs. To this cauſe, ſome writers aſcribe the flat noſes and big bellies of the Negroes. The mother, in raiſing the child by ſudden jerks, makes its noſe ſtrike againſt her back; and the child, to avoid theſe frequent blows, keeps its head back and its belly forward *. Their hair is black, and criſped like curled wool. Their hair and colour conſtitute the chief difference between them and other men; for their features are not more different from thoſe of the Europeans, than the Tartarian viſages differ from thoſe of the natives of Britain. We are aſſured by Father TERTRE, that the flat noſes of the Negroes are occaſioned by a general practice of mothers, who depreſs the noſes of their new-born infants, and ſqueeze their lips, in order to thicken them; and that thoſe children who eſcape theſe operations, have elevated noſes, thin lips, and fine features. The Negroe women are very prolific. They bring forth with eaſe, and require neither midwife nor accoucheur. Child-bearing, with them, is attended with no troubleſome conſequences; for they fully recover their ſtrength by repoſing themſelves for

* Le Maire, p. 144.; Le Père du Jaric, p. 364.; et Le Père du Tertre, p. 493.

for a day or two. They are excellent nurſes, and treat their offspring with great tenderneſs and affection.

The Negroes who inhabit the Cape de Verd coaſt, and the iſland of Goree, are very black, but handſome. Though robuſt and ſtrong, they are indolent, and cultivate neither vines, corn, nor fruits. Fiſhes and millet conſtitute their principal articles of food; for they ſeldom eat fleſh. The Europeans they compare to horſes, becauſe they eat herbs. But they are ſo paſſionately fond of ſpirits, that they often ſell their parents, their children, and even themſelves, for brandy *. They wear only a cotton garment, which covers them from the middle of the body to one half of the thigh; becauſe, they allege, the heat of the climate prevents them from uſing any more clothes †.

Like the Negroes of Guinea, thoſe of Sierra-Leone are of a black colour, though leſs deep than that of the natives of Senegal. They paint their bodies with red and other colours. They alſo paint a ring round their eyes of a white, yellow, or red colour, and make different coloured ſtreaks upon their faces Many of them cut figures of plants and animals upon their ſkin. Their women are ſtill more debauched than thoſe of Senegal. Though many of them are common proſtitutes, they incur neither cenſure, nor the ſmalleſt diſhonour. Both men and women wear ear-rings made of teeth, horns, ſhells, bits of wood, &c. which often weigh three or four ounces. Some pierce their noſtrils, or upper lips, for the purpoſe of ſuſpending ſimilar ornaments. Their clothing conſiſts of an apron made of the bark of trees, and covered with the ſkins of apes; and to thoſe ſkins they fix little bells. Their beds are made of ruſh-mats.

* Voyages de M. Gennes, p. 15.

† Lettres Edifiantes, Recueil 11. p. 48.

mats. They eat fiſh, or fleſh when it can be procured; but their chief food is yams and bananas *. Their principal paſſion is for women; and they are idle and inactive. Though in the near neighbourhood of rich valleys, hills covered with trees, green and fertile fields, beautifully interſected with brooks and rivers, they often continue to occupy wild and barren places. But their ſtupidity and indolence render them inſenſible to every pleaſure and advantage of this kind.

The Negroes of Guinea, though they have vigorous conſtitutions and enjoy good health, ſeldom arrive at old age. A Negroe of fifty years is a very old man. Their premature intercourſe with the females may be one cauſe, at leaſt, of the ſhortneſs of their lives. When very young, their children are allowed to indulge in every ſpecies of debauchery †. The Negroes of the iſlands of Annobona, St Thomas, &c. reſemble thoſe on the adjacent continent. Men and women go promiſcuouſly naked, except a ſmall apron round their middle ‡. On the coaſts of Arada and Juda, the Negroes are not ſo black as thoſe of Senegal, Guinea, and Congo. To all other meat they prefer the fleſh of dogs. At their feaſts, a roaſted dog is commonly the firſt diſh preſented to their gueſts. This taſte is not peculiar to the Negroes; for the ſavages of North America, and of ſome Tartarian nations, are equally fond of the fleſh of dogs.

We are informed by PIGAFETTA, that the Negroes of Congo are leſs black than thoſe of Senegal. Though, in ſome individuals, the

* Indiae Orient. par. 2. in qua Johannis Hugonis Linſtcotani, &c. Navigatio, p. 11.

† Le Voyage de Guinée, par Boſman, p. 143.

‡ Pyrard, p. 16.

the hair is red; yet, in general, it is black and criſped. The men are of a middle ſize. Some of them have brown eyes; in others, they are of a greeniſh colour. Their lips are not very thick; and, in their features, they have a great reſemblance to the Europeans *.

They have very ſingular cuſtoms in certain provinces of Congo. For example, when a man dies in Loango, they place his corpſe, in a ſitting poſture, on an amphitheatre raiſed about ſix feet above the ground. He is then dreſſed in his beſt garments, and fires are kindled around him. In proportion as the moiſture is abſorbed by the clothes, he is covered with freſh ones, till the body is perfectly dry. After this, he is buried with great ſolemnity. In the province of Malimba, the huſband is ennobled by the wife. Upon the death of the King, if he leaves only a ſingle daughter at the age of puberty, ſhe becomes abſolute miſtreſs of the kingdom. Her reign is begun by making a tour through her dominions. In her paſſage through the different towns and villages, all the men are obliged to appear before her, and ſhe ſingles out the individual whom ſhe fancies moſt to paſs the night with her. When returned from her journey, ſhe ſends for the man who beſt pleaſed her, and inſtantly marries him. Immediately after marriage her power ceaſes, and devolves upon the huſband. Theſe facts are extracted from the Travels of M. DE LA BROSSE, along the coaſt of Angola, in the year 1738. He adds a fact not leſs ſingular. 'Theſe Negroes,' he remarks, 'are extremely vindictive, of which I ſhall give a convincing proof. They daily demanded of us ſome brandy for the uſe of the King and chief men of the town. One day this requeſt was denied, and we had ſoon reaſon to repent it; for all the Engliſh and French officers having gone to fiſh on a ſmall lake near

* Indiae Orient. part 1. p. 5.; Drake's Voyage, p. 110.

'near the ſea-coaſt, they erected a tent for the purpoſe of dreſſing 'and eating the fiſhes they had caught. When amuſing themſelves 'after their repaſt, ſeven or eight negroes, who were the chiefs of 'Loango, arrived in ſedans, and preſented their hands, according to 'the cuſtom of the country. Theſe Negroes privately rubbed the 'hands of the officers with a ſubtle poiſon, which acts inſtantaneouſ-'ly; and, accordingly, five captains and three ſurgeons died on the 'ſpot.'

In Senegal, Gambia, Cape de Verd, Angola, and Congo, the Negroes are of a finer black than thoſe of Juda, Iſſigni, Arada, and the neighbouring provinces. When in health, they are totally black; but, when ſick, they become copper-coloured, or yellowiſh *. The Negroes of Angola are preferred in the French iſlands, on account of their ſtrength, to thoſe of Cape de Verd: But, when heated, they emit a ſmell ſo rank and offenſive, that they infect the places through which they paſs for more than a quarter of an hour. The Negroes of Cape de Verd do not ſmell ſo ſtrong as thoſe of Angola: They have likewiſe a finer ſkin; they are more handſome; their features are ſofter, and their diſpoſitions more gentle †. In Guinea, the Negroes are robuſt, and very fit for cultivating the ground, and other laborious employments. Thoſe of Senegal are not ſo ſtrong; but they are more ingenious, and better adapted for domeſtic ſervants ‡. We are informed by CHARLEVOIX, that the Negroes of Senegal are the moſt handſome and docile; that the Bambaras are larger, but that they are all thieves; that the Aradas are the beſt cul-

* Nouv. Voy. aux iſles de l'Amerique, tom. 4. p. 138.

† L'Hiſt. des Antilles, par le Père du Tertre. p. 493.

‡ Nouv. Voy. aux iſles de l'Amerique, tom. 4. p. 116.

tivators of the earth; that the Congos are the ſmalleſt in ſtature; that they are excellent fiſhers, but much addicted to deſertion; that the Nagos are the moſt gentle and humane, the Mondongos the moſt cruel and ferocious, the Mimes the moſt reſolute, but capricious, and very apt to deſpair; and that the Creole or Mungrel Negroes, from whatever nations they originate, retain little of their parents, but the colour and the abject ſpirit of ſlavery. They are more ingenious, but more ſlothful and debauched than the Negroes of Africa. CHARLEVOIX adds, that the genius of the Guinea Negroes is very limited; that ſome of them appear to be almoſt entirely ſtupid, being unable to reckon beyond the number three; that their memories are extremely limited; the paſt and the future being equally unknown to them; that ſome of them are poſſeſſed of humour, and make tolerable mimics; that they are very cunning, and would die rather than reveal a ſecret; that they are gentle, humane, ſimple, credulous, and ſuperſtitious; but that they are brave, faithful, and, if properly trained to war, would make excellent ſoldiers *.

The Negroes ſeem not to be poſſeſſed of much genius; but their feelings are very acute. They are melancholy or gay, ſlothful or laborious, enemies or friends, according to the treatment they receive. When well fed, and not abuſed, they are contented, chearful, and ready for every kind of employment. But, when oppreſſed and maltreated, they become peeviſh, and not unfrequently die of melancholy. They are exceedingly ſenſible both of benefits and of abuſe. Againſt thoſe who injure them, they entertain a mortal hatred. But, when they have an affection for a maſter, to ſhow their zeal and attachment, there is not an office, however hazardous, which they will not

* Hiſt. de St Dominique, par le Pêre Charlevoix.

not execute with intrepidity. By nature, they are affectionate, and ardently love their children, friends, and countrymen *. Without any motive but that of compaſſion, they freely diſtribute the little they poſſeſs to the indigent and neceſſitous.

The ingenious and humane COUNT DE BUFFON, when treating of this ſubject, makes the following manly reflections: 'The unfortunate Negroes, as appears from their hiſtory, are endowed with excellent hearts, and poſſeſs the ſeeds of every human virtue. I cannot write their hiſtory, without lamenting their miſerable condition. Is it not more than enough to reduce men to ſlavery, and to oblige them to labour perpetually, without the capacity of acquiring property? To theſe, is it neceſſary to add cruelty and blows, and to abuſe them worſe than brutes? Humanity revolts againſt thoſe odious oppreſſions which reſult from avarice.—The Negroes are forced to labour; and yet the coarſeſt food is dealt out to them with a ſparing hand. They ſupport, ſay their obdurate taſk-maſters, hunger without inconvenience; a ſingle European meal is ſufficient proviſion to a Negroe for three days; however little they eat or ſleep, they are always equally ſtrong, and equally fit for labour †. How can men, in whoſe breaſts a ſingle ſentiment of humanity remains unextinguiſhed, adopt ſuch deteſtable maxims? How dare they, by ſuch barbarous and diabolical arguments, attempt to palliate thoſe oppreſſions which originate ſolely from their thirſt of gold? But, let us abandon thoſe hardened monſters to perpetual infamy, and return to our ſubject.'

We know little of the inhabitants of the coaſts and interior parts

* Hiſt. des Antilles, p. 483.

† Hiſt. de St Domingue, p. 468.

of Africa, from Cape Negro to Cape de Voltes, an extent of about four hundred leagues. Thus far, however, we know that theſe men are not ſo black as the other Negroes, and that they reſemble the Hottentots, with whom they border on the ſouth. On the contrary, the Hottentots are well known, and have been deſcribed by many voyagers. They are Caffres, and would be of a tawny colour only, if they did not bedaub their ſkin with black paint and greaſe. M. KOLBE, however, regards them as genuine Negroes. He informs us, that all of them have ſhort, black, criſped, and woolly hair *. M. KOLBE, however, tells us, that their colour is not totally black, but olive, though they employ every art to darken their ſkin. Their diſpoſitions are likewiſe different from thoſe of the Negroes; for the latter are cleanly ſedentary, and eaſily reconciled to ſervitude. But the Hottentots are diſguſtingly naſty; they are a wandering independent people, and very jealous of their liberty.

The inhabitants of the Cape of Good Hope are deſcribed by GAMA, who arrived in the Bay of St Helena in the year 1497, as being blackiſh, of ſmall ſtature, and having an aſpect extremely diſagreeable. He adds, that the ſound of their voice reſembled that of ſighing; that their clothing was the ſkins of beaſts; and that they armed themſelves with bludgeons hardened with fire, and pointed with the horn of ſome animal †. The Dutch voyagers tell us, that the ſavages north of the Cape are a ſmaller people than the Europeans; that they are of a reddiſh brown colour; that they are extremely ugly, and increaſe their blackneſs with paint ‡. In another place, they inform us, that the colour of the Hottentots reſembles that

* Deſcription du Cap de Bonne Eſperance, p. 95.

† Hiſt. gen. des Voy. par l'Abbé Prevôt, tom. 1. p. 22.

‡ Voyages de la Comp. de Hollande, p. 218.

that of Mulattoes; that their countenances are very diſagreeable; that they are of a middle ſtature; that they are meagre, and exceedingly fleet in the chace; and that, when ſpeaking, their voice reſembles the clucking of a Turkey cock *: Father TACHARD tells us, that though the hair of the Hottentots be, in general, woolly, like that of the Negroes, many of them have long hair which hangs upon their ſhoulders. He adds, that ſome of them are as white as the Europeans, but that they diſguiſe their natural colour by covering their bodies with greaſe and the powder of a certain black ſtone; and that the women, though born fair, paint themſelves black with a view to pleaſe the men †. OVINGTON ſays, that the Hottentots are more tawny than the other Indians; that they have ſome reſemblance to the Negroes in features and colour, only they are not ſo black; neither is their hair ſo much criſped, nor their noſes ſo much flattened ‡.

It is apparent, from theſe and many other teſtimonies, that the Hottentots are not real Negroes, but blacks approaching to whiteneſs, in the ſame manner as the Moors are whites approaching to blackneſs. Theſe Hottentots are a ſingular race of people. Their females, who are generally much ſmaller than the men, have an excreſcence, or broad hard ſkin, which ariſes from the top of the os pubis, and hangs down, like an apron, till it reaches the middle of their thighs ‖. All the women who are natives of the Cape are ſubject to this deformity, which they willingly uncover to any perſon who wiſhes to examine it. The men are all half eunuchs, not by nature, but

* Voyages de Spitſberg, p. 443.

† Le Premier Voy. du Prêre Tachard, p. 108.

‡ Voyage d'Ovington, p. 194.

‖ Deſcript. du Cap, par M. Kolbe, tom. 1. p. 91. and Voyage de Courlai, p. 291.

but by a moſt abſurd cuſtom of cutting out, about the age of eight years, one of their teſticles. M. KOLBE ſaw this operation performed. The circumſtances with which this religious ceremony is accompanied are ſingular. The prieſt rubs the boy with greaſe taken from the entrails of a ſheep; they lay him on his back, bind his hands and feet, and ſome of his friends hold him faſt in that poſition. The prieſt then proceeds, and with a ſharp knife cuts out the left teſticle. In its place, he puts a ball of greaſe of nearly the ſame ſize, accompanied with ſome medicinal herbs. The wound is then ſowed up with a needle made of the bone of ſome ſmall bird, and a thread from the tendon of a ſheep. The patient is then untied, and the prieſt rubs the whole body of the boy with greaſe ſo copiouſly, that it forms a kind of cruſt. In the next place, the operator, with his nails, makes furrows in this cruſt of greaſe, from one end of the body to the other, and then diſcharges his urine upon them. After this operation he again fills up the furrows with freſh greaſe. Theſe preparations being finiſhed, the boy is abandoned, and left alone in a condition reſembling death rather than life. He is then obliged to creep, in the beſt manner he can, into a hut erected near the place where the operation was performed. In this miſerable hovel, he either dies or recovers without aſſiſtance, or any other nouriſhment than the greaſe with which he is encruſted. In two days, he generally recovers, iſſues from his hut, and returns to his relations *.

Though all the Hottentots have flat noſes, this would not happen to them, if their mothers did not compreſs them immediately after birth; for they conſider prominent noſes as great deformities. Their lips are very thick, their teeth are white; their eye-brows are buſhy, their heads large, their bodies meagre, and their limbs ſlender. Their

* Deſcript. du Cap, par Kolbe, p. 275.

Their exiſtence ſeldom exceeds forty years. This limited duration of their lives is chiefly occaſioned by the naſtineſs in which they continually wallow, and the putrid fleſh which conſtitutes their principal food. The Dutch, ſays TAVERNIER, carried off a Hottentot girl a few days after birth, brought her up among themſelves, and her colour continued to be as white as that of any European. From this fact he draws the natural concluſion, that all the Hottentots would be equally fair, if they did not daub their bodies with black paint and greaſe.

In the territory of Natal, which ſtretches along the African coaſt beyond the Cape of Good Hope, the natives differ greatly from the Hottentots. They are better made, and leſs ugly. Nature has likewiſe made them blacker. Their viſages are oval, their noſes well proportioned, and their teeth white. Their general aſpect is agreeable, and their hair is criſped. Like the Hottentots, however, they are fond of greaſe; for they wear bonnets made of tallow. The height of theſe bonnets is from eight to ten inches. The tallow is well refined. They apply but little of it at a time, and mingle it ſo completely with their hair, that it never falls off *. M. KOLBE tells us, that theſe people do not ſtammer in their ſpeech like the Hottentots; that they build houſes, cultivate the ground, and ſow a ſpecies of maize, of which they make a fermented liquor †. Beyond Natal are the territories of Sofala and Monomotapa, where, according to PIGAFETTA, the natives are black, but taller and thicker than the other Caffres. Thoſe of Monomotapa, we are told by the Dutch voyagers, are black, tall, handſome, and have fine features. The girls wear no clothes but a piece of thin cotton ſtuff upon their middle.

* Dampier, tom. 2. p. 393.

† Deſcript. du Cap, tom. 1. p. 136.

middle. When married, however, they put on garments. Though very black, theſe people differ from the Negroes. Their features are not ſo ugly; they emit no bad ſmell; and they can endure neither hard labour nor ſervitude.

The inhabitants of Madagaſcar and of Moſambique are more or leſs black. The hair of the natives of Madagaſcar is not ſo much criſped as thoſe of Moſambique. Neither of theſe people are genuine Negroes. Both men and women go perfectly naked. They eat the fleſh of elephants, and ſell the ivory to merchants *. Madagaſcar is inhabited by blacks and whites; the latter of whom, though tawny, ſeem to be a different race. The hair of the former is black and criſped; but that of the latter is more fair, leſs criſped, and much larger. It is remarked by FRANCIS CAUCHE, that theſe whites are probably of European extraction; for none of them whom he ſaw had flat noſes, like the Chineſe. He likewiſe informs us, that the Madagaſcar whites are fairer than the Caſtillans; that their hair is long; that even the blacks are not flat-noſed, like thoſe on the continent; and that their lips are not thick. There are alſo many perſons in this iſland of a tawny or olive colour, who probably proceed from a commixture of the whites and blacks. We are told by the ſame traveller, that the natives round the Bay of St Auguſtine are tawny; that they have no beards; that their hair is ſmooth and long; that they are a tall and handſome people; and that, though they probably never heard of Mahomet, the males are all circumciſed †. The firſt European ſettlement on this iſland was eſtabliſhed by

* Recueil des voyages, tom. 3. p. 623.; Le Voy. de Moquet, p. 265.; et La Navigation de Jean Hugues Linſcot, p. 20.

† Voyage de François Cauche, p. 45.

by the French; but it was ſoon abandoned *. Upon their arrival they ſaw the white men formerly mentioned; and they perceived that the blacks had a great reſpect for the whites †. Madagaſcar is a very populous iſland, and abounds in cattle and good paſturage. Both ſexes indulge much in debauchery; and public proſtitution is not reckoned diſhonourable. They are fond of ſinging, dancing, and ſimilar amuſements. Though naturally indolent, they know and practiſe ſome of the mechanical arts. They have no furniture in their houſes, but ſleep upon mats. Notwithſtanding this circumſtance, they have huſbandmen, carpenters, ſmiths, potters, and even goldſmiths. They eat their meat almoſt raw; and, after ſinging the hair, they devour the ſkins of their oxen. The vulgar go nearly naked; but drawers or petticoats of cotton or of ſilk are uſed by the more opulent ‡.

The inhabitants of the interior regions admit not of any accurate deſcription, becauſe we have too little knowledge of them. Thoſe whom the Arabians call *Zingues* are black, and nearly in a ſavage ſtate.

From the authorities which have been quoted, it appears that the Negroes are a different ſpecies of blacks from the Caffres. It is ſtill more apparent, however, that the differences in colour are the genuine effects of climate; and that the peculiarities in features have a great dependence upon the cuſtoms and practices obſerved by different nations, as thoſe of flattening the noſe, pulling the hair from the eye-brows, making the ears unnaturally long, the lips thick, the

* Voyage de Flacour.

† Voyage de M. Delon.

‡ Le Voyage de Flacour, p. 90.; Struys, tom. 1. p. 32.; Pyrard, p. 38

face broad, &c. We cannot have a ſtronger evidence of the influence of climate upon the colour of the human ſkin, than to find, under the ſame latitude, and diſtant from each other above one thouſand leagues, a race of men ſo ſimilar as thoſe of Nubia and of Senegal; and that the Hottentots, who have ſprung from the blacks, are the whiteſt people in Africa, ſolely becauſe the country they inhabit is the coldeſt.

The natives of Madagaſcar are called *Malegaches* or *Madecaſſes*. They are portly in their perſons, and generally exceed the middle ſtature. In their countenances, ſtriking marks of good nature and frankneſs are exhibited. They diſcover no deſire of learning any thing which has not a relation to the ſimpleſt wants of nature. An uncommon degree of careleſſneſs and apathy renders every thing unſupportable to them which requires any exertion of mind. They are ſober, ſprightly, and active, and ſpend their lives in alternate reſt and amuſement. To the Malegache, the preſent moment is to be enjoyed; he ſeems not to be ſuſceptible of foreſight; and he entertains not an idea that any man can give himſelf uneaſineſs about futurity. Theſe iſlanders are perfectly free beings, and, in general, enjoy health of body and tranquillity of mind. The Malegache is his own abſolute maſter. He has no reſtraint on his freedom. He acts and does what he pleaſes, except what may be injurious to his fellow creatures. He never attempts to aſſume an empire over the minds or actions of his neighbours. Each individual adopts his own mode of living, in which no body ever thinks of diſturbing him.

In Madagaſcar, the inhabitants are divided into a great number of tribes, which are all governed by particular chiefs. The lands are not divided, but belong to thoſe who take the trouble of cultivating

vating them. Rice conſtitutes their chief food, though they likewiſe uſe butcher-meat and fiſh, of which laſt their ſeas and rivers afford great quantities, as well as a great diverſity of kinds. The power of their chiefs is much limited; but, in the province of Carcanaſſi, they are the ſuppoſed proprietors of all the land, which they diſtribute among their ſubjects, who pay a ſmall quit-rent only. It is not unworthy of remark, that, among theſe remote iſlanders, we can trace evident marks of the feudal laws of Europe. In this province, the people have ſome knowledge of writing. In the Madecaſſe language, there are a few hiſtorical compoſitions; but their learned men, who are denominated *Ombiaſſes*, uſe ſolely the Arabic characters. They have written treatiſes on medicine, geomancy, and judicial aſtrology. The Ombiaſſes are both phyſicians and ſorcerers, a conjunction not altogether, even in one of the moſt enlightened kingdoms of Europe, deſpiſed or aboliſhed, as we learn from the late famous narratives of the effects of *animal magnetiſm in Paris!* The moſt celebrated of theſe ſorcerers come from the province of Matatane, where magical tricks are in the higheſt eſtimation. The other natives of the iſland dread the Matatanes, becauſe they excel in this art of deception. In their public ſchools, the Ombiaſſes teach geomancy and aſtrology. The Arabs, who made a conqueſt of this iſland about three hundred years ago, taught the natives the art of writing; and the knowledge of the Arabian language is pretty general in ſeveral provinces of Madagaſcar.

It might have been expected, that the Mahometan religion ſhould have made a greater progreſs in this iſland, eſpecially when we conſider, that, for centuries, it has been ſo much frequented by the Arabs. If we except, however, circumciſion, abſtinence from pork, and ſome other inſignificant practices, which have little influence on

general manners and conduct, even the deſcendents of the Arabs have forgotten or neglected the fundamental principles of their religion. They believe not in a future exiſtence. They admit, like the Manichees, of two principles in nature, the one ſupremely good, and the other extremely wicked. To the former they never addreſs their prayers, but continually do homage and offer up ſacrifices to the latter. The iſland of Madagaſcar is ſo contiguous to the coaſt of Africa, that it has moſt probably been peopled from that vaſt continent. But at preſent, however, the different races are ſo intermixed, that, to deſcribe all the varieties of them would be a vain and a uſeleſs attempt. The real race of Negroes, however, are eaſily to be diſtinguiſhed; but it is almoſt impoſſible to recognize thoſe who are deſcended from the whites.

Such of theſe iſlanders as poſſeſs any erudition relate, that the Creator of the heavens and the earth formed, from the body of the firſt man, whilſt he was aſleep, ſeven women, who were the mothers of their different ranks or caſts. The caſt of the Rhoandrians were formed from the firſt man's brain; that of the Aracandrians, from his neck; that of the Ontzatſi, from his left ſhoulder; that of the Vodziri, from his right ſide; that of the Ontzoa, from the thigh and the calf of the leg; and that of the Ondeves, from the ſoles of his feet. According to the parts of the body from which theſe caſts are ſuppoſed to have proceeded, their rank and importance are eſtimated.

It is impoſſible to peruſe this account of the origin of mankind, given by the natives of Madagaſcar, without recogniſing a moſt ſtriking reſemblance between it and that delivered to us by the moſt celebrated legiſlator MOSES. Theſe eaſtern people cut ſeven women out of one man; but MOSES contents himſelf with cutting one woman

man only out of the ſide of ADAM, our firſt progenitor; and EVE, the wife of ADAM, from the preſent population of this globe, ſeems to have been perfectly ſufficient to accompliſh the grand purpoſe for which ſhe was created.

In Madagaſcar, a plurality of wives is not uncommon, particularly among the chiefs and other rich individuals. But they never legally marry more than one; for the reſt are conſidered as concubines. This practice is not attended with thoſe diſagreeable conſequences which we ſhould naturally expect; for all theſe women live together in perfect harmony. Beſides, a divorce may be obtained whenever the conjugal union becomes diſagreeable either to the huſband or wife. In this iſland, adultery is regarded as a robbery, and receives the ſame puniſhment. Hence theſe people have the greateſt reſpect for a married ſtate. They caution ſtrangers to behave with decency to their wives; but, what is moſt ridiculouſly abſurd, they offer the uſe of their daughters to ſtrangers, and think themſelves highly honoured when the offer is accepted.

Before drawing general concluſions, we ſhall give a ſhort account of the natives of the New World. In the more northerly regions of America, we meet with a kind of Laplanders, who reſemble thoſe of Europe, or the Aſiatic Samoiedes. They are not numerous; but they occupy a great extent of territory. Thoſe who inhabit Davis's Straits are of a diminutive ſtature, have an olive colour, and thick, ſhort legs. They are expert fiſhers, and eat their fiſhes and their meat perfectly raw. Their drink conſiſts of water, or the blood of ſea-dogs. They are very robuſt, and live to a great age *. Theſe circumſtances conſtitute, in the moſt exact manner, the figure, the colour, and the manners

* Hiſt. Nat. des Iſles, p. 189.

manners of the natives of Lapland. What is ſingular, the Fins, who are adjacent to the Laplanders of Europe, are a white, beautiful, pretty large, and handſome people; and, in the neighbourhood of the Laplanders of America, we meet with a race of men who are tall, pretty white, and poſſeſſed of regular features *. Along Hudſon's Bay, and to the north of Labrador, the ſavages are ſmall, ill-made, ugly, and ſeem not to belong to the ſame race with the former. Their faces, like thoſe of the ſavages of Jeſſo, are almoſt entirely covered with hair. In ſummer, they live in tents made of the ſkins of rein-deer; and, in winter, they dwell under ground, where the men and women ſleep promiſcuouſly. In Newfoundland, the ſavages have a reſemblance to thoſe of Davis's Straits. Their ſtature is low; they have little or no beard, large eyes, flat noſes, and broad faces. The traveller from whom this deſcription is taken, adds, that they are very ſimilar to the natives in the neighbourhood of Greenland †. Theſe ſavages ſpread over the northern regions of America; but, to the ſouth of them, we fall in with a more numerous and different race, who inhabit Canada, and the countries adjacent, as far as the territories of the Aſſiniboils. Theſe people are large, robuſt, and well proportioned; their hair and eyes are black, and their teeth white. Their colour is ſwarthy; they have ſcanty beards, and ſcarcely any hair on their bodies. In the chace they are extremely fleet, and, in travelling, indefatigable. They are a bold, grave, hardy people, and have ſo great a reſemblance to the oriental Tartars, that, if there were no difficulty concerning the poſſibility of their migration to the New World, we ſhould be apt to conclude that they had ſprung from the ſame origin. They likewiſe live under the ſame latitude, which is an additional proof of the powerful influence

* Hiſt. Nat. des Iſles, p. 189.

† Recueil des Voyages au Nord, tom. 3. p. 7.

fluence of climate upon the colour and even the figure of human bodies. Thus, in the northern regions of the New as well as of the Old Continent, we, in the firſt place, find a race ſimilar to the Laplanders, and alſo white men with fair hair, like thoſe of the north of Europe; then a hairy race, like the ſavages of Jeſſo; and, laſtly, the ſavages of Canada, who ſtretch as far as the Gulf of Mexico, and have a ſtriking reſemblance to the European Tartars. This extenſive country, even on its firſt diſcovery, was very thinly inhabited. We are told by M. FABRY, who penetrated farther into North America than perhaps any other perſon, and where the ſavages, of courſe, could have ſuffered no diminution of population from the depredations of Europeans, that, in this region, he frequently travelled two hundred leagues without ſeeing a human creature, or perceiving any marks which indicated the adjacent country to be inhabited; and that, when he did meet with any Indian huts, they were generally diſtant from each other about one hundred leagues, and the whole inhabitants ſeldom exceeded twenty individuals. It is true, that, along the banks of rivers and lakes, they are more numerous, and ſometimes even troubleſome to the European coloniſts. In thoſe nations, however, the number of perſons ſeldom amounts to more than three or four thouſand, who are ſpread over a vaſt extent of country.

The multiplication of the human ſpecies, in every climate, depends more upon their union into a ſocial ſtate than any other circumſtance. Men, comparatively, would not be ſo numerous as the wild quadrupeds, if they did not derive mutual ſupport from each other. The biſons, or wild oxen of North America, exceed perhaps, in numbers, thoſe of the human ſpecies. But, though population be one reſult of ſociety, their increaſed numbers give riſe to and

ſtrengthen

ſtrengthen their union. Hence it may be preſumed, that the want of civilization in the New World is chiefly owing to its being thinly inhabited; for though, originally, each nation exhibited different manners and cuſtoms; though ſome of them were more daſtardly, cruel, and ſavage than others; yet they were all ignorant, ſtupid, and equally deſtitute of induſtry and of arts.

Though North America, however, affords ſavages only, Mexico and Peru preſented to the view of Europeans a civiliſed people governed by laws and by regal eſtabliſhments. They were poſſeſſed of arts, of induſtry, and of religion. They lived in cities, where the ſovereign, by his authority, maintained order and police. Theſe people, who, at the time of their being diſcovered, were exceedingly numerous, cannot be regarded as new nations, or, by reaſon of their remoteneſs, as originating from individuals who had paſſed the Atlantic from the Old Continent. The inhabitants of Florida, along the Miſſiſippi, and of the more ſoutherly regions, are more tawny than thoſe of Canada. The paint and oil with which they beſmear their bodies, make their colour unnaturally olive. We are informed by COREAL, that, in Florida, the women are ſtrong, tall, and, like the men, of an olive colour; that they paint their arms, legs, and bodies, with different colours, which remain perpetually, becauſe, by the operation of puncturing, they are indelibly engrained in the ſkin; that the olive colour does not proceed ſo much from the heat of the climate, as from the oil with which their ſkins are varniſhed. He farther tells us, that the women are very active; that they ſwim acroſs broad rivers, each with an infant in her arms; and that they climb with agility the higheſt trees *. The whole of theſe qualities they

* Le Voyage de Coreal, tom. 1. p. 36.

they poſſeſs in common with the Canadians and the other ſavages of America.

It is remarked by Father du TERTRE, that the Caribbees are, in general, tall, and have an agreeable aſpect; that they are healthy, ſtrong, and active; that the countenances of ſome of them are flat, and their noſes depreſſed: But theſe features are not natural; they are induced artificially, ſoon after birth, by the parents. Moſt of the Caribbees have ſmall, black eyes, long, ſmooth, black hair, and white teeth. Their colour is tawny or olive. This colour is the effect of Nature, and not of art; for their offspring, who have been brought up in Europe, and denied the uſe of paint, had the ſame colour with that of their parents. Theſe ſavages, though cruel to their enemies, are naturally of a mild and compaſſionate diſpoſition. Without diſtinction, they marry ſtrangers, or their own mothers; and many of them poſſeſs, at the ſame time, two ſiſters, or the mother and daughter, and even their own daughter. With regard to their wives, [illegible] men pardon, with the greateſt eaſe, their unfaithfulneſs; but they never forgive the man who debauches them. They feed upon crabs, turtles, fiſhes, lizards, and ſerpents, which they ſeaſon with pimento, and the powder of manioc *. As they are indolent to exceſs, and accuſtomed to an unreſtrained independence, they can never, like the Negroes, be reconciled to any regular kind of labour. They exert every effort to preſerve their liberty, and, rather than work, they will die of hunger, or of melancholy. The Arrouaguas, who have milder diſpoſitions than the Caribbees, are ſometimes employed as labourers, but only in their favourite exerciſes of hunting or fiſhing. The Braſilian ſlaves have nearly the ſame diſpoſitions. They are not, however,

* Hiſt. gen. des Antilles, par du Tertre, tom. 2. p. 453.

ever, ſo indolent, ſtupid, and melancholy, as the other ſavages of America. When gently treated, they will ſubmit to any manual operation, except that of cultivating the ground, which they regard as the greateſt mark of ſlavery.

The female Caribbees are fat, and pretty handſome. Their eyes and hair are black, their mouths ſmall, their teeth white; and they are reſerved and modeſt in their behaviour. They uſe paint; but they do not, like the men, make black lines on their faces and other parts of the body. They wear ſmall aprons only, which are made of cotton, ſtudded with beads, and eight or ten inches in breadth, by five or ſix in length. Beſide theſe aprons, which they purchaſe from the Europeans, they employ collars of the ſame cloth, which hang down upon their breaſts. Of this ſtuff they likewiſe wear bracelets, and ear-rings compoſed of ſtrings of beads, or made of a blue ſtone. The only other ornament peculiar to the women is a buſkin of cotton ſtudded with beads, which extends from the calf of the leg to the ankles. When girls attain the age of puberty, they are allowed aprons and buſkins, the laſt of which are made ſo ſtrait, that they cannot be removed. This apparatus prevents the lower parts of the legs from thickening, and the upper parts, of courſe, grow larger and ſtronger *.

In Mexico and Peru, the inhabitants are ſo intermixed, that it is difficult to ſee two countenances of the ſame complexion. The city of Mexico is compoſed of Europeans, ſouth and north American Indians, Negroes of Africa, Mulattoes, and Mongrels of every ſpecies †. The genuine natives are olive and brown, nimble, and well-proportioned.

* Nouv. Voy. aux. Iſles, tom. 2. p. 8.

† Lettres Edifiantes, Recueil 11. p. 119.

tioned. On their eye-brows, their hair is ſcanty, but that on their heads is black and very long *.

We are informed by WAFER, that, in the Iſthmus of America, the natives are of a good ſtature and ſhape. They have elegant limbs, a full cheſt, and are remarkably fleet in the chace. The women are ſhort and ſquat. Both ſexes have round faces, flat ſhort noſes, large eyes, generally of a grey colour, and very brilliant, prominent fore-heads, thin lips, white teeth, and very regular features. Their hair is long, black, and ſtraight; and, if they did not pull out the hairs, the men would have beards. Their colour is tawny, and their eye-brows are black.

Theſe people, however, are not the only natives of this Iſthmus. There are among them a ſpecies of white men, whoſe colour reſembles that of milk. Their bodies are covered with a ſhort white down; which, upon the face, is not ſo thick as to conceal the ſkin. Their hair, as well as their eye-brows, are perfectly white. Theſe Indians are ſhorter than the others; and it is ſingular, that their eye-lids have the form of creſcents, with the points turned downward. Their eyes are ſo weak, that, during the day, they have no diſtinct perception of objects. They ſee beſt by the mild light of the moon. They cannot endure hard labour. During the day they ſleep, and ſeldom go abroad but in the night. When the moon ſhines, they run nimbly through the deepeſt ſhades of the foreſts, with as much eaſe and ſafety as other men do in the brighteſt day. Theſe men, upon the whole, are by no means ſo vigorous as the other Indians. They conſtitute a peculiar and diſtinct race. It ſometimes happens, however, that a copper-coloured male and female produce

* Voy. de Coreal, tom. 1. p. 116.

one of theſe white children. WAFER, from whom theſe facts are enumerated, tells us, that he had ſeen children of this kind when they exceeded not their firſt year *. If this narrative be true, the conſtitution and the colour of theſe white Indians muſt be a kind of diſeaſe derived from their parents. But, if they are produced by thoſe of a copper colour, then they muſt form a diſtinct race, reſembling the Chacrelas of Java, and the Bedas of Ceylon. But, if theſe whites really proceed from copper-coloured parents, it muſt likewiſe be allowed, that the Bedas and Chacrelas have been produced by tawny progenitors; and that they form not a particular race, but are only individuals, who, by ſome accidental and unknown cauſe, have aſſumed a colour different from that of their original ſtock.

This laſt idea ſeems to be the moſt probable. The occaſional production of whites by Negroe parents adds great force to this theory. We have deſcriptions of two white Negroes in the Hiſtory of the French Academy. 'I have ſeen one of them,' ſays the COUNT DE BUFFON, 'and am aſſured that they are very frequent among the 'Negroes of Africa †. What I have ſeen, independently of the re'lations of voyagers, leaves me no room to doubt concerning the ori'gin of theſe white Negroes. They are only Negroes who have de'generated from their race, and not a particular permanent ſpecies 'of men: In a word, they are among the Negroes what WAFER tells 'us the white Indians are among the yellow or copper-coloured In'dians of Darien, and, probably, what the Chacrelas and Bedas are 'among the brown Indians of the Eaſt. It is ſingular, that this va'riation of Nature takes place only from black to white, and not 'from white to black. It is no leſs ſingular, that all the people in 'the Eaſt Indies, in Africa, and in America, where theſe white men

'appear,

* Dampier, tom. 4. p. 252.

† Venus Phyſique.

'appear, lie under the ſame latitude: The Iſthmus of Darien, the 'Negroe country, and the iſland of Ceylon, are under the very ſame 'parallel. White, then, appears to be the primitive colour of Na-'ture, which may be varied by climate, by food, and by manners, 'to yellow, brown, and black, and which, in certain circumſtances, 'returns, but ſo greatly altered, that it has little or no reſemblance 'to the original whiteneſs.'

The two extremes of blackneſs and whiteneſs continually approach each other. In her moſt ſeemingly perfect exertions, Nature made men white, and, after undergoing every poſſible ſhade, ſhe ſtill renders them white. But the ſpecific whiteneſs is very different from the accidental. We have ſimilar examples in the vegetable kingdom. A white flower, even in the quality of whiteneſs, is very different from a red one which has been rendered white by froſt, or by excluſion from light.

The Indians of Peru, and eſpecially thoſe who live in the plains and along the ſea-coaſts, are, like the inhabitants of the Iſthmus, of a copper colour. But thoſe who occupy the elevated parts of the country between the two ranges of the Cordeliers, are almoſt as white as the Europeans. In Peru, ſome parts of the country are a league higher than others; which produces a greater variation on the temperature of the climate than an hundred leagues of latitude. The Indians of Guiana, and along the river of the Amazons, are all more or leſs of a tawny reddiſh colour. CONDAMINE tells us, that the differences in the ſhades are chiefly occaſioned by the temperature of the air, which varies from the heat of the Torrid Zone, to the great colds produced by the neighbourhood of the ſnow *: That the Omaguas,

* Voy. de la Condamine, p. 49.

guas, and ſome other ſavages, flatten the faces of their children by lacing their heads between two boards *; that others pierce the noſtrils, lips, or cheeks, and place in them feathers, the bones of fiſhes, and ſimilar ornaments; that moſt of them bore their ears, and, inſtead of ear-rings, employ herbs and flowers †. In Braſil, the ſavages are nearly of the ſame ſize with the Europeans; but they are ſtronger, and more agile: Neither are they ſubjected to ſo many diſeaſes; and their longevity is great. Their hair is black, and ſeldom grows hoary with age. Their colour is tawny, or a mixture of red and brown. Their heads are large, their ſhoulders broad, and their hair is long. They pull the hairs out of their beards, their eyebrows, and all parts of their bodies, which makes them have an uncommon and a ferocious appearance. Their under lip they pierce, and as an ornament inſert into it a green ſtone, or a ſmall poliſhed bone. Immediately after birth, the mothers flatten the noſes of their children. The whole of them go abſolutely naked, and paint their bodies with different colours. Thoſe who inhabit the ſea-coaſts are now ſomewhat civilized by their intercourſe with the Portugueſe; but moſt of thoſe who occupy the interior parts of the country are ſtill ſavages. A ſavage people are not to be civilized by force or by ſlavery. In theſe ſavage nations, the miſſionaries have poliſhed more men than the arms of thoſe princes by whom they were ſubdued. The ferocity and ſtubbornneſs of the ſavages of Paraguay were conquered by the humanity, the gentleneſs, and the venerable example of the miſſionaries. They frequently begged to be inſtructed in that law by which men were rendered ſo perfect; and they often followed its precepts, and united with ſociety ‡. In general, the natives of Paraguay

* Voy. de la Condamine, p. 72. † Ibid. p. 48.

‡ Voy. de Lery, p. 108.; Coreal, tom. 1. p. 163.; Mem. pour ſervir a l'hiſt. des Indes, p. 287.; L'Hiſt. des Indes, par Maffée, 71.; Pyrard, tom. 2. p. 337.; Lettres Edifiantes, Recueil 15. p. 331. &c.

Paraguay are tall and well-proportioned. Their countenances are long, and their ſkin is olive-coloured *.

We are informed by FREZIER, that the natives of Chili, like thoſe of Peru, are tawny, their colour reſembling reddiſh copper. This colour differs from that of the Mulattoes, who, as they are produced by the commixture of whites and blacks, are of a brown colour, or a mixture of black and white. On the contrary, the South American Indians are yellow, or rather reddiſh. In Chili, the inhabitants are of a middle ſize. They have large cheſts, thick limbs, ſmall eyes, long ears, ſtraight, buſhy, black hair, and countenances by no means agreeable. They pull the hairs out of their beards, and lengthen their ears. Though the climate is not hot, they generally wear no clothes, except a ſkin thrown over their ſhoulders.

It has been alleged, that, on the confines of Terra Magellanica, and near the extremity of Chili, there exiſts a gigantic race of men. FREZIER tells us, truſting to the authority of ſome Spaniards, that theſe men are nine or ten feet in height. Theſe gigantic men, he remarks, are called *Patagonians*, and live on the eaſtern parts of the coaſt. This ſtory of the Patagonians was afterwards conſidered as fabulous, becauſe the Indians along the Straits of Magellan were found not to exceed the common ſtature of mankind. This circumſtance, he continues, might have deceived FROGER, in his narrative of the voyage of M. DE GENNES; for both ſpecies of men are ſaid to have been ſeen by the crew of the ſame veſſel. The crew of the James of St Malo, we are told, ſaw, in Gregory Bay, in the year 1709, ſeven of theſe giants; and the crew of the St Peter of Marſeilles ſaw ſix of

* Coreal, tom. 1. p. 240. and 259.; Lettres Edifiantes, Recueil 11. p. 391.; Ibid. Recueil 11. p. 391.; and Recueil 12. p. 6.

of them, to whom they offered bread, brandy, and wine; which, though they had given preſents of arrows to the ſailors, and aſſiſted them in bringing the ſhip's boat aſhore, they refuſed *. As M. DE FREZIER, however, does not ſay that he had ſeen any of theſe gigantic ſavages, and as the relations concerning them are full of exaggerations upon other ſubjects, the exiſtence of a race of giants, ſo high as ten feet, muſt ſtill remain problematical. The bodies of ſuch men muſt be eight times the bulk of thoſe of ordinary perſons. About five feet is the mean height of the human ſpecies; and the extremes ſeldom exceed a foot above or below this ſtandard. Giants and dwarfs who exceed theſe terms are accidental varieties only, and not diſtinct and permanent races. Beſides, if theſe Magellanic giants have any exiſtence, their numbers muſt be very ſmall; for the ſavages found along the Straits, and in the adjacent iſlands, are of a middle ſize. They are of an olive colour; and they have large cheſts, ſquat bodies, thick legs, and ſtraight black hair †. In fine, their ſtature does not exceed the ordinary ſize, and, both in colour and hair, they reſemble the other Americans.

IN conducting a narrative of this nature, compiled from a multiplicity of voyages written by various authors, and in different languages, it muſt of neceſſity, aſſume a deſultory appearance. But, as the great object of this chapter is, to give conciſe ideas concerning the ſituation, character, manners, religion, and government of mankind almoſt from the South to the North Pole, every indulgence is to be expected from an intelligent reader. To accompliſh this purpoſe,

* Voy. de Frezier, p 75.

† Coreal, p. 231. and 284.; l'Hiſt. de la conquête des Moluques, par Argenſola, tom. 1. p. 35. and 255.; Le Voy. le M. de Gennes, par Froger, p. 97.; Les Voy. de la Comp. d'Holl. tom. 1. 651.; Dampier, p. 179.

poſe, the quantity of reading is immenſe; but the uſe I have made of it, others muſt determine.

With this view, leaving the weſt coaſt of America, I ſhall to give a curſory account of the inhabitants of ſome of the iſlands in the South Sea or Pacific Ocean.

Before proceeding to more particular obſervations, one general remark cannot eſcape notice. The natives of the numerous iſlands ſcattered through this immenſe ocean, admit of two obvious and characteriſtic diviſions, namely, the *friendly*, *generous*, and *hoſpitable*; and the *barbarous*, *brutal*, and

On each of theſe ſubjects particular examples can only be hibited.—At Otaheite and ſeveral other iſlands, the natives, as a mark of intended friendſhip, uniformly preſent, like the northern nations of old, green branches of trees. When Captain COOK and his aſſociates anchored in a fine bay, called *Motavai* *, they were inſtantly ſurrounded by the natives in their canoes, who exchanged cocoa-nuts, bread-fruit, and ſome ſmall fiſhes, for beads and ſimilar trifles. 'The bread-fruit,' Captain COOK informs us, 'grows on a tree 'that is about the ſize of a middling oak. Its leaves are frequently 'a foot and an half long, of an oblong ſhape, deeply inſinuated like 'thoſe of the fig-tree, which they reſemble in conſiſtence and colour, 'and in the exuding of a white milky juice upon being broken. 'The fruit is about the ſize and ſhape of a child's head; and the 'ſurface is reticulated, not much unlike a truffle. It is covered 'with a thin ſkin, and has a core about as big as the handle of a 'ſmall knife. The eatable part lies between the ſkin and the core:

* April 13. 1769.

'It is as white as ſnow, and ſomewhat of the conſiſtence of new 'bread. It muſt be roaſted before it is eaten, being firſt divided 'into three or four parts. Its taſte is inſipid, with a ſlight ſweet-'neſs, ſomewhat reſembling that of the crumb of wheaten bread 'mixed with a Jeruſalem artichoke *.'

In this voyage, Captain COOK was attended by the celebrated Mr BANKS, (now Sir JOSEPH), and Dr SOLANDER, gentlemen highly qualified for ſcrutinizing every department of Nature, whether animal, vegetable, or mineral. When they landed, they were amicably received by ſome hundreds of the inhabitants, though the latter were ſtruck with ſuch awe, that the firſt who approached crept almoſt upon his hands and knees. He, however, preſented the uſual ſymbol of peace, a green branch of a tree. Captain COOK and his company took a walk for ſome miles in the woods, attended by a numerous train of natives, who had now relinquiſhed their timidity and become familiar. 'As we went along,' Captain COOK remarks, 'we diſtributed beads and other ſmall preſents among them, and 'had the ſatisfaction to ſee that they were much gratified. Our 'circuit was not leſs than four or five miles, through groves of trees, 'which were loaded with cocoa-nuts and bread-fruit, and afforded 'the moſt grateful ſhade. Under theſe trees were the habitations 'of the people, moſt of them being only a roof without walls; and 'the whole ſcene realized the poetical fables of Arcadia †.'

A curious cuſtom, though practiſed by ſome other iſlanders, was here exhibited. 'Two men,' ſays Captain COOK, 'of ſuperior 'rank came on board, and each fingled out his friend; one of them, 'whoſe name was found to be *MATAHAH*, fixed upon Mr BANKS, 'and

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 80. † Ibid. p. 83.

'and the other upon me. This ceremony conſiſted in taking off 'great part of their clothes and putting them on us. In return for 'this, we preſented each of them with a hatchet and ſome beads *.' After this interchange of preſents with TOOTAHAH, the natives, both males and females, continues Captain COOK, 'attended us to ſeveral 'large houſes, in which we walked about with great freedom. The 'ladies ſhowed us all the civility of which, in our ſituation, we 'could accept; and, on their part, ſeemed to have no ſcruple that 'would have prevented its being carried farther †.' Next day, Captain COOK and his aſſociates took leave of their friendly chief, and directed their courſe along the ſhore. In their walk, they met, at the head of a numerous train of people, another chief, called *TUBOURAI TAMAIDE*, with whom amity was eſtabliſhed by mutually exchanging branches of trees, putting their hands on their left breaſts, and pronouncing the word *Taio*, which ſignifies *friend*. The chief then invited them to eat, which offer they readily accepted, and made a hearty meal upon fiſh, bread-fruit, cocoa-nuts, and plantains. 'During this viſit,' continues Captain COOK, 'a wife 'of our noble hoſt, whoſe name was *TOMIO*, did Mr BANKS the 'honour to place herſelf upon the ſame matt, cloſe by him. TOMIO 'was not in the firſt bloom of her youth; nor did ſhe appear to 'have been ever remarkable for her beauty. He did not, therefore, 'I believe, pay her the moſt flattering attention. It happened too, 'as a farther mortification to this lady, that, ſeeing a very pretty 'girl among the crowd, he, not adverting to the dignity of his 'companion, beckoned to her to come to him. The girl, after ſome 'intreaty, complied, and ſat down on the other ſide of him. He 'loaded her with beads, and every ſhowy trifle that could pleaſe her. 'His Princeſs, though ſhe was ſomewhat mortified at the preference

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 84. † Ibid. p. 85.

'that was given to her rival, did not diſcontinue her civilities, but 'ſtill aſſiduouſly ſupplied him with the milk of the cocoa-tree, and 'ſuch other dainties as were in her reach.' In ſimilar circumſtances, could any Princeſs in Europe have conducted herſelf with more dignity, politeneſs, and propriety?

At firſt ſight, there appears a ſingular trait in the character of the natives even of Otaheite, and other friendly and placid iſlanders. They are all arrant thieves, and can pick pockets with the dexterity of the moſt expert London blackguard *. Their thefts, however, admit of the ſtrongeſt apology. We do not learn that they ſteal from each other, but from ſtrangers, who exhibit ſuch uncommon and alluring objects, that the temptation is almoſt irreſiſtible †. The accuracy and expedition, however, of their police is aſtoniſhing. A complaint of this kind is no ſooner made to a chief, than he inſtantly deſpatches his meſſengers; and the thieves are apprehended and the ſtolen articles reſtored in a few hours. Upon this ſubject, Captain COOK, with much propriety, remarks, that theſe people 'ſhow an intelligence and influence which would do honour to any 'ſyſtem of government, however regular and improved ‡.' But, he afterwards remarks, 'That the people of this country, of all ranks, 'men and women, are the arranteſt thieves upon the face of the 'earth ‖.'

As an apology for the thieviſh diſpoſition of theſe ignorant and innocent people, Captain COOK, with much humanity and good ſenſe, remarks, 'That we muſt not eſtimate the virtue of theſe 'people by the only ſtandard of morality, the conformity of their 'conduct

* See Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 87. *et alibi paſſim.*

† This idea is contradicted, Ibid. p. 170. ‡ Ibid. p. 88. ‖ Ibid. p. 100.

'conduct to what in their opinion is right; but we muſt not haſtily conclude, that theft is a teſtimony of the ſame depravity in them 'that it is in us, in the inſtances in which our people were ſufferers 'by their diſhoneſty; for their temptation was ſuch, as to ſurmount 'would be conſidered as a proof of uncommon integrity among 'thoſe who have more knowledge, better principles, and ſtronger 'motives to reſiſt the temptations of illicit advantage. An Indian 'among penny knives and beads, or even nails and broken glaſs, is 'in the ſame ſtate of trial with the meaneſt ſervant in Europe among 'unlocked coffers of jewels and gold *.'

The principal object of this voyage was to make obſervations on a tranſit of the planet Venus over the Sun's diſk; which, to the immortal honour of his Majeſty GEORGE III. was performed under his auſpices. This tranſit happened on the third day of June 1769; and the reader may ſee a particular deſcription of it in the Philoſophical Tranſactions, vol. 61. part 2. p. 379. *et ſeqq.*

With regard to *funeral rites*, the people of theſe iſlands never *bury* their dead under ground. About this time died an old woman of ſome rank, who was related to TOMIO, which gave our voyagers an opportunity of obſerving how theſe people diſpoſe of their dead. 'In the middle of a ſmall ſquare, neatly railed in with bamboo, the 'awning of a canoe was raiſed upon two poſts, and under this the 'body was depoſited upon a frame. It was covered with fine cloth; 'and near it was placed bread-fruit, fiſh, and other proviſions. We 'were informed by our friend TUBOURAI TAMAIDE, that the food 'was placed there as an offering to their gods. In the front of the 'area was a kind of ſtile, where the relations of the deceaſed ſtood 'to

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 102. 148.

'to pay the tribute of their ſorrow; and under the awning were 'innumerable ſmall pieces of cloth, on which the tears and the blood 'of the mourners had been ſhed; for, in their paroxyſms of grief, 'it is an univerſal cuſtom to wound themſelves with the ſhark's 'tooth *.' This cuſtom, of expreſſing grief by wounding themſelves, is not peculiar to any nation. Even in the civilized nations of Europe, extreme grief is often expreſſed by violently beating the breaſt, tearing the hairs from the head, and ſometimes by actual ſuicide. The practice of expoſing the dead above ground, till the fleſh is conſumed by putrefaction, and afterwards burying the bones, does not admit of an eaſy explanation. It is worthy of remark, however, that ÆLIAN and APOLLONIUS RHODIUS mention a ſimilar cuſtom among the antient inhabitants of Colchis, a country of Aſia now known under the appellation of *Mingrelia*. This manner of treating the dead, however, was not extended to both ſexes. The men were wrapped in a hide, and hung up in the air by a chain; but the women were buried in the earth: A diſtinction which might originate from the extreme jealouſy, or rather delicacy, of the Aſiatics.

In a morning walk, Mr BANKS met a number of natives, whom he diſcovered to be a band of *muſicians*. Having learnt where they were to ſpend the evening, Mr BANKS and the other gentlemen gave their attendance. The band conſiſted of two players on the flute and three drummers. The drummers accompanied the muſic with their voices; and the gentlemen were not a little ſurpriſed to diſcover that *they* were generally the ſubject of the ſong. 'We did 'not expect,' ſays Captain COOK, 'to have found, among the un-'civilized inhabitants of this ſequeſtered ſpot, a character which has 'been the ſubject of ſuch praiſe and veneration, where genius and 'knowledge

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 142.

'knowledge have been moſt conſpicuous; yet theſe were the bards 'or minſtrels of Otaheite. Their ſong was unpremeditated, and ac-'companied with muſic; they were continually going about from 'place to place; and they were rewarded by the maſter of the 'houſe, and the audience *.'

On the 29th day of June 1769, Captain COOK and the other gentlemen went to the diſtrict called *Paparra*, the property of their friends OAMO and OBEREA, where they meant to ſleep. 'We 'went on ſhore about an hour before night, and found that they 'were both abſent, having left their habitations to pay us a viſit at 'Matavai. This, however, did not alter our purpoſe. We took 'up our quarters at the houſe of OBEREA, which, though ſmall, 'was very neat, and, at this time, had no inhabitant but her father, 'who received us with looks that bid us welcome. Having taken 'poſſeſſion, we were willing to improve the little day-light that was 'left us; and therefore walked out to a point, upon which we had 'ſeen, at a diſtance, trees that are here called *Etoa*, which general-'ly diſtinguiſh the places where theſe people bury the bones of their 'dead. Their name for ſuch burying-grounds, which are alſo 'places of worſhip, is *Morai*. We were ſoon ſtruck with the ſight 'of an enormous pile, which, we were told, was the Morai of 'OAMA and OBEREA, and the principal piece of Indian architecture 'in the iſland. It was a pile of ſtone-work, raiſed pyramidically, 'upon an oblong baſe, or ſquare, two hundred and ſixty-ſeven feet 'long, and eighty-ſeven feet wide. It was built like the ſmall py-'ramidal mounts upon which we ſometimes fix the pillar of a ſun-'dial, where each ſide is a flight of ſteps. The ſteps, however, at 'the ſides, were broader than thoſe at the ends; ſo that it termi-'nated

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 147.

'nated not in a ſquare of the ſame figure with the baſe, but in a ridge, 'like the roof of a houſe *.'

Theſe people have a cuſtom of anointing their heads with an oil expreſſed from the cocoa-nut, in which ſome ſweet herbs or flowers have been infuſed. As the oil is generally rancid, the ſmell is at firſt very offenſive; 'and,' Captain COOK remarks, 'as they live 'in a hot country, and have no ſuch thing as a comb, they are not 'able to keep their heads free from lice, which the children and com-'mon people ſometimes pick out and eat: A hateful cuſtom, whol-'ly different from their manners in every other particular; for they 'are delicate and cleanly almoſt without example; and thoſe to 'whom we diſtributed combs ſoon delivered themſelves from ver-'min †.'

The cuſtom of *tattowing*, or ſtaining various parts of their bodies by means of ſmall punctures and a kind of lamp-black, is general here, as well as in many other parts of the world. But they ſeldom or never deform their faces with theſe marks. 'It is ſtrange,' Captain COOK remarks, 'that theſe people ſhould value themſelves upon 'what is no diſtinction; for I never ſaw a native of this iſland, ei-'ther man or woman, in a ſtate of maturity, in whom theſe marks 'were wanting ‡.'—Their garments conſiſt of cloth, or matting, of various kinds. The cloth, which is a vegetable maſh, like our paper, they wear in dry weather only, becauſe it will not bear wetting; and the matting when it rains. Theſe garments are put on in many different faſhions according as fancy directs; for no part of their clothes is cut into ſhape, nor are any two pieces ſewed together. 'As

'finery,'

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 166.

' Ibid. p. 189 † Ibid. p. 191.

'finery,' Captain COOK remarks, 'is always troubleſome, and parti-
'cularly in a hot country, where it conſiſts of putting one covering
'upon another, the women of rank always uncover themſelves as
'low as the waiſt in the evening, throwing off all that they wear on
'the upper part of the body, with the ſame negligence or eaſe as our
'ladies would lay by a cardinal or double handkerchief. And the
'chiefs, even when they viſited us, though they had as much cloth
'round their middle as would clothe a dozen people, had frequently
'the reſt of the body quite naked. Upon their legs and feet they
'wear no covering; but they ſhade their faces from the ſun
'with little bonnets, either of matting or of cocoa-nut leaves.
'This, however, is not all their head-dreſs: The women ſometimes
'wear little turbans, and ſometimes a dreſs which they value much
'more, and which, indeed, is much more becoming, called *Tomou*.
'The *Tomou* conſiſts of human hair; plaited in threads, ſcarcely
'thicker than ſewing ſilk. Mr BANKS has pieces of it above a mile
'in length without a knot. Theſe they wind round the head in
'ſuch a manner as produces a very pretty effect, and in a very great
'quantity; for I have ſeen five or ſix ſuch pieces wound about the
'head of one woman. Among theſe threads they ſtick flowers of va-
'rious kinds *.' The men likewiſe ornament their heads with the feathers of the Tropic-bird, and garlands of flowers. Beſide flowers, their perſonal ornaments are not numerous: Both ſexes wear earrings, but they are placed on one ſide only: 'When we came,' ſays Captain COOK, 'they conſiſted of ſmall pieces of ſhell, ſtone, berries,
'red peas, or ſome ſmall pearls, three in a ſtring; but our beads
'very ſoon ſupplanted them all †. The children go perfectly na-

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 192, &c.

† Ibid. p. 194.

'ked; the boys till they are ſix or ſeven years old, and the girls till 'they are three or four.'

In Otaheite, the houſes are all erected in the woods between the ſea and the mountains; and no more ground is cleared for each houſe than is ſufficient to prevent the dropping of the branches upon the thatch. Hence from their houſes the inhabitants ſtep immediately into the moſt delightful ſhades, formerly groves of bread-fruit and cocoa-nut trees, which are interſected, in all directions, by the paths that lead from one houſe to another. The ground which a houſe covers is generally a parallelogram of about twenty-four feet long, and eleven wide, over which a roof is raiſed upon three rows of poſts, parallel to each other, one on each ſide, and the other in the middle. This roof, which is thatched with palm-leaves, conſiſts of two flat ſides that terminate in a ridge, exactly ſimilar to the thatched houſes in Britain. The utmoſt height of the inſide is about nine feet, and the eaves on each ſide reach to about three feet and a half of the ground. 'Below this,' Captain COOK informs us, 'and 'through the whole height at each end, it is open, no part of it be-'ing incloſed with a wall.—The floor is covered, ſome inches deep, 'with ſoft hay. Over this are laid mats; ſo that the whole is one 'cuſhion, upon which they ſit in the day, and ſleep in the night. In 'ſome houſes, however, there is one ſtool, which is wholly appro-'priated to the maſter of the family. Beſides this, they have no 'furniture, except a few little blocks of wood, the upper ſide of 'which is hollowed into a curve, and which ſerve them for pil-'lows*.'

Their houſes are principally employed as dormitories; for, except when

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 195.

when it rains, they eat their victuals in the open air, under the ſhade of a neighbouring tree. 'The clothes that they wear in the day 'ſerve them for covering in the night; the floor is the common bed 'of the whole houſehold, and is not divided by any partition. The 'maſter of the houſe and his wife ſleep in the middle, next to them 'the married people, next to them the unmarried women, and next to 'them, at a little diſtance, the unmarried men; the ſervants, or '*Toutous*, as they are called, ſleep in the open air, except it rains, 'and, in that caſe, they come juſt within the ſhed *.' They have houſes, however, of a much larger ſize, built for the temporary accommodation of a whole diſtrict. Some of theſe are 200 feet long, 30 broad, and, under the ridge, 20 feet high. Theſe houſes are built and maintained at the common expence of the diſtrict †. 'Theſe 'houſes, like thoſe of ſeparate families, have no walls. Privacy, in-'deed, is little wanted among people who have not even the idea 'of indecency, either in words or actions ‡.'

The chief food of the natives of Otaheite conſiſts of vegetables. They have no tame animals, except poultry, hogs, and dogs, and theſe are not numerous. Captain COOK and his aſſociates agreed that a South Sea dog was little inferior to a Britiſh lamb, which is probably occaſioned by their being kept up, and fed ſolely upon vegetables. The ſea affords them a great variety of fiſhes; of which the ſmaller ones are generally eaten raw, as we eat oiſters. Their principal vegetable aliment is the bread-fruit, to obtain which it coſts them no other trouble than that of climbing a tree. The tree which produces this fruit does not, it is true, ſhoot up ſpontaneouſly: 'But,' Captain COOK remarks, 'if a man plants ten of them in his

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 195.

† Ibid. p. 196. ‡ Ibid.

'lifetime, which he may do in about an hour, he will as completely fulfil his duty to his own and future generations, as the native 'of our leſs temperate climate can do by ploughing in the cold of 'winter, and reaping in the ſummer's heat, as often as theſe ſeaſons 'return.—It is true, indeed, that the bread-fruit is not always in 'ſeaſon; but cocoa-nuts, bananas, plantains, and a great variety of 'other fruits, ſupply the deficiency *.' Their art of cookery is very ſimple and limited. It conſiſts entirely of broiling and baking. Their drink, in general, is water, or the juice of the cocoa-nut, the art of producing intoxicating liquors by fermentation or diſtillation being happily unknown to them. Neither do they chew any narcotic ſubſtances, ſuch as opium, beetle-root, and tobacco. 'Some of 'them,' ſays Captain COOK, 'drank freely of our liquors, and, in a 'few inſtances, became very drunk; but the perſons to whom this 'happened were ſo far from deſiring to repeat the debauch, that they 'would never touch any of our liquors afterwards. We were, however, informed, that they became drunk by drinking a juice that is 'expreſſed from the leaves of a plant which they call *Ava Ava*. 'This vice is almoſt peculiar to the chiefs and conſiderable perſons, 'who vie with each other in drinking the greateſt number of 'draughts, each draught being about a pint †. They keep this intoxicating juice with great care from their women ‡.'

The quantity of food which theſe people eat at a meal is prodigigious.

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 197.

† A ſimilar practice was long prevalent in Scotland. When a lady's health was drunk to, if any gentleman in company ſaid *more*, the antagoniſts proceeded to double the quantity each time the word was repeated, till it terminated in one of them falling from his chair. This abſurd and hurtful amuſement has, for ſome years, happily ceaſed.

‡ Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 200.

gious. 'I have ſeen one man,' ſays Captain COOK, 'devour two 'or three fiſhes as big as a perch; three bread-fruits, each bigger 'than two fiſts; fourteen or fifteen plantains or bananas, each of 'them ſix or ſeven inches long, and four or five round; and near a 'quart of the pounded bread-fruit, which is as ſubſtantial as the 'thickeſt unbaked cuſtard *.

It is a ſingular cuſtom among the Otaheiteans, that, though fond of ſociety, and particularly that of their women, they always eat alone. 'How a meal,' Captain COOK remarks, 'which every where 'elſe brings families and friends together, came to ſeparate them 'here, we often inquired, but could never learn. They eat alone, 'they ſaid, becauſe it was right; but why it was right to eat alone, 'they never attempted to tell us. Such, however, was the force of 'habit, that they expreſſed the ſtrongeſt diſlike, and even diſguſt, at 'our eating in ſociety, eſpecially with our women, and of the ſame 'victuals. Even two brothers and two ſiſters have each their ſepa-'rate baſkets with proviſion and the apparatus of their meal. When 'they firſt viſited us at our tents, each brought his baſket with him; 'and, when we ſat down to table, they would go out, ſit down up-'on the ground, at two or three yards diſtance from each other, and, 'turning their faces different ways, take their repaſt without inter-'changing a ſingle word †.

Flutes and drums are their only muſical inſtruments. The flutes are made of hollow bamboos, and the drums of hollowed blocks of wood, of a cylindrical form, ſolid at one end, and, at the other, covered with a ſhark's ſkin. Theſe drums they beat with their 'hands,

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 202.

† Ibid. p. 203.

hands, and not with ſticks; and they know how to tune two drums of different notes into concord.

With regard to ſexes, the natives of Otaheite ſeem not to have even the ſenſe of modeſty. Among other amuſements, they have a dance, called *Timorodee*, which is performed by young girls. It conſiſts of motions and geſtures extremely wanton and diſſolute. Theſe people have aſcended a ſcale of ſenſuality unknown to every other nation whoſe manners have been recorded. 'A very conſi-'derable number of the people of Otaheite, of both ſexes,' Captain COOK tells us, 'have formed themſelves into ſocieties, in which 'every woman is common to every man. Theſe ſocieties are diſ-'tinguiſhed by the name of *Arreoy*; and the members have meet-'ings, at which no other is preſent, where the men amuſe them-'ſelves by wreſtling, and the women, notwithſtanding their occa-'ſional connection with different men, dance the *Timorodee* in all 'its latitude, as an incitement to deſires which, it is ſaid, are fre-'quently gratified upon the ſpot. This, however, is comparatively 'nothing. If any of the women happen to be with child, which, 'in this manner of life, happens leſs frequently than if they were 'to cohabit only with one man, the poor infant is ſmothered the 'moment it is born, that it may be no incumbrance to the father, 'nor interrupt the mother in the pleaſures of her diabolical proſtitu-'tion. A practice ſo horrid,' continues our author, 'ſhould not be 'imputed to human beings upon ſlight evidence; but I have ſuch as 'abundantly juſtifies me in the account I have given. The people 'themſelves are ſo far from concealing their connection with ſuch a 'ſociety as a diſgrace, that they boaſt of it as a privilege; and both 'myſelf and Mr BANKS, when particular perſons have been pointed 'out to us as members of the Arreoy, have queſtioned them about it,

'and

'and received the account that has been here given from their own 'lips. They have acknowledged, that they have long been mem- 'bers of this accurſed Society, that they belonged to it at that time, 'and that ſeveral of their children had been put to death *.

The natives of Otaheite are extremely attentive to perſonal cleanlineſs. Both ſexes uniformly bathe themſelves three times every day; as ſoon as they riſe in the morning, at noon, and before they go to ſleep at night. This operation they perform either in the ſea, or in ſome adjacent river.

Their chief *manufacture* is cloth, which conſiſts of three kinds, and is compoſed of the bark of three different trees, the Chineſe paper mulberry, the bread-fruit tree, and a tree which reſembles the wild fig-tree of the Weſt Indies. The cloth procured from the paper mulberry is the fineſt and whiteſt. This kind is chiefly worn by people of ſome diſtinction, and, when dyed red, takes a better colour. A ſecond kind, which is inferior both in whiteneſs and ſoftneſs, they make of the bread-fruit tree: It is worn chiefly by the lower claſs of people. A third ſort they derive from a tree that reſembles the fig. This cloth, though not ſo pleaſing to the eye or the touch, is the moſt valuable, becauſe it reſiſts the operation of water, which the other two ſpecies cannot. Theſe three uſeful trees, as might be expected, are propagated with care and diligence. The liber, or inner rind of the bark, is alone employed; and the operation of making the various kinds of cloth is performed by maſhing the ſubſtances in water, and beating them into form with bone-mallets. This ſpecies of manufacture, though different, is ſomewhat ſimilar to our

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 207, &c.

our making of paper *. Theſe cloths they dye with ſeveral colours, but chiefly red and yellow. Their dyes, or rather pigments, conſiſt of the expreſſed juices of various vegetables.

Theſe people likewiſe manufacture matting of many different kinds; ſome of which are finer and better than any we have in Europe. The coarſer matting they ſleep upon, and the finer they wear as garments in wet weather. In making baſkets and wicker-work, they are alſo very ingenious and dexterous. 'Their baſkets,' ſays Captain COOK, 'are of a thouſand different patterns, many of them 'exceedingly neat; and the making them is an art that every one 'practiſes, both men and women †.' Of the bark of the *Poerou*, or *Hibiſcus tileaceus* of LINNAEUS, they make ropes and fiſhing lines, from the thickneſs of an inch to that of a packthread; with theſe they make nets for fiſhing. With thread made of the fibres of cocoa-nut, they faſten together the ſeveral parts of their canoes. 'Of the bark 'of the *Erowa*,' Captain COOK informs us, 'a kind of nettle which 'grows in the mountains, and is therefore rather ſcarce, they make 'the beſt fiſhing lines in the world: With theſe they hold the 'ſtrongeſt and moſt active fiſh, ſuch as Bonetas and Albicores, which 'would ſnap our ſtrongeſt ſilk lines in a minute, though they are 'twice as thick. They make alſo a kind of ſeine, of a coarſe broad 'graſs, the blades of which are like flags. Theſe they twiſt and tie 'together in a looſe manner, till the net, which is about as wide as 'a large ſack, is from ſixty to eighty fathoms long. This they haul 'in ſmooth ſhoal-water, and its own weight keeps it ſo cloſe to the 'ground that ſcarcely a ſingle fiſh can eſcape ‡.'

Every

* In the Muſaeum of the Antiquarian Society of Edinburgh, many ſpecimens of theſe cloths may be ſeen.

† Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 217. ‡ Ibid. p. 218.

Every fiſherman here is his own artificer, and makes hooks, lines, and even harpoons, with great neatneſs and ingenuity *. The chief materials of which they are compoſed, are wood, bones, and ſhells.

One great article in their manufacture is the building and carving their boats; and Captain COOK remarks, that to fabricate one of their principal veſſels, with their tools, is perhaps as great a work as to build a Britiſh man of war with ours. They employ an adze of bazaltic ſtone, a chiſſel, or gouge, of bone, a raſp of coral, and the ſkin of the ſting-ray, with coral ſand, as a file or poliſher. 'This,' ſays Captain COOK, 'is a complete catalogue of their tools; and with 'theſe they build houſes, conſtruct canoes, hew ſtone, and fell, 'cleave, carve, and poliſh timber †.' The length of their canoes vary from ten to ſeventy-two feet, according to the purpoſes they are intended to anſwer, and are diſtinguiſhed by different names. Their breadth is by no means proportioned to their length; for thoſe of ten feet are about a foot wide only, and thoſe which exceed ſeventy in length, are not more than two feet broad. Thoſe long veſſels never go to ſea ſingle, but two of them are faſtened together, ſide by ſide, at the diſtance of near three feet, by ſtrong rafters of wood, which are laid acroſs the canoes and laſhed to their gunwales. 'Upon theſe,' ſays Captain COOK, 'in the fore-part, a ſtage or platform is raiſed, about ten or twelve feet long, and ſomewhat wider than the boats, which is ſupported by pillars about ſix feet high: 'Upon this ſtage ſtand the fighting men, whoſe miſſile weapons are 'ſlings and ſpears; for, among other ſingularities in the manners of 'theſe people, their bows and arrows are uſed only for diverſion,

* Of theſe, various ſpecimens may be ſeen in the Muſæum of the Antiquarian Society of Edinburgh.

† Hawkeſworth's Narrative, &c. vol. 2. p. 220.

'as we throw quoits. Below theſe ſtages ſit the rowers, who re-
'ceive from them thoſe that are wounded, and furniſh freſh men to
'aſcend in their room *.' The oars or paddles employed to manage theſe boats have a long handle and a flat blade, not unlike a baker's peal. Some of them have one maſt, and ſome two; and, when the length of the canoe is thirty feet, that of the maſt is about five and twenty. The ſails conſiſt of ſtrong matting. With theſe boats the natives, in going from one iſland to another, are ſometimes out a month together. Sometimes, Captain COOK informs us, they are fourteen or twenty days at ſea, and could keep it longer, if they had more ſtowage for water and other proviſions. They have a wonderful ſagacity in foretelling the weather, eſpecially the quarter from which the wind ſhall blow at a future period.

'In their longer voyages,' ſays Captain COOK, 'they ſteer by
'the ſun in the day, and, in the night, by the ſtars; all of which
'they diſtinguiſh ſeparately by names, and know in what part of
'the heavens they will appear in any of the months during which
'they are viſible in their horizon. They alſo know the time of
'their annual appearing and diſappearing with more preciſion than
'will eaſily be believed by any European aſtronomer †.

With regard to the diviſion of time in Otaheite, Captain COOK and the other gentlemen were not able to acquire a perfect idea. They, however, remarked, that, when ſpeaking of time, either paſt or future, theſe people uniformly employed the word *Malama*, which ſignifies *Moon*. 'Of theſe moons,' ſays Captain COOK, 'they count thirteen, and then begin again; which is a demonſtra-
'tion that they have a notion of the ſolar year ‡.' Every day, or twenty-

* Hawkeſworth's Narrative, &c. vol. 2. p. 221. † Ibid. p. 226. ‡ Ibid. p. 227.

twenty-four hours, they divide into twelve parts. During the day, they eſtimate theſe diviſions pretty accurately by the height of the ſun; but, when the ſun is below the horizon, few of them are capable of reckoning time by means of the ſtars. In numeration, they proceed from one to ten, which they count on the fingers of both hands. In counting above ten, they repeat the name of that number, and add the word *more;* as ten and one *more* is eleven; ten and two more is twelve, &c.; in the ſame manner as we ſay twenty-one, twenty-two. 'When they come to ten and ten more,' Captain COOK informs us, 'they have a new denomination, as we ſay a 'ſcore; and by theſe ſcores they count till they get ten of them, 'when they have a denomination for two hundred *; and we never 'could diſcover that they had any denomination to expreſs a greater 'number †.—In meaſuring diſtance, they are much more deficient 'than in computing numbers, having but one term, which anſwers 'to *fathom.* When they ſpeak of diſtances from place to place, 'they expreſs it, like the Aſiatics, by the time that is required to paſs 'it ‡.'

The language of the Otaheiteans, we are informed, is ſoft and melodious. It abounds with vowels, and is eaſily pronounced. 'Whether it is copious,' Captain COOK remarks, 'we were not 'ſufficiently acquainted with it to know; but it is certainly very 'imperfect; for it is almoſt totally without inflection, both of nouns 'and verbs. Few of the nouns have more than one caſe, and few 'of the verbs more than one tenſe; yet we found no great difficul-'ty in making ourſelves mutually underſtood ‖.' In their language, however, they have a few adjuncts which are very uſeful to them,

* Hawkeſworth's Narrative, &c. vol. 2. p. 228. † Ibid. ‡ Ibid.
‖ Ibid.

but extremely puzzling to ſtrangers. 'One aſks another,' ſays Captain COOK, '*Harre hea?* "Where are you going?" The other 'anſwers, *Ivahinera*, "To my wives;" upon which the firſt re-'peating the anſwer interrogatively, "To your wives?" is anſwered, '*Ivahinereira;* "Yes, I am going to my wives." Here the ſuffixa '*era* and *eira* ſave ſeveral words to both parties *.'

In general, the *languages* in the South Sea, and particularly in Otaheite, ſeem to conſiſt of ſounds which are extremely ſoft and delicate. The proportion of vowels employed greatly exceeds that of the conſonants; and it is not unworthy of remark, that, with regard to language, even in Europe, the nearer we approach to the equatorial regions, the number of vowels increaſe, and the languages become not only more perfect, by the inflexions of nouns and verbs, but more harmonious and muſical. The Italian is much more ſoft and ductile, and better accommodated to the purpoſes of poetry, than thoſe of their neighbours the French or Germans. The Greek, again, in theſe qualities, exceeds the Italian; and the Perſic, and other Aſiatic languages, are ſtill ſofter and more languiſhing than the Greek. In the South Sea iſlands, Captain COOK informs us, 'their language is ſoft and melodious; it abounds with vowels, and 'we eaſily learnt to pronounce it; but found it exceedingly difficult 'to teach them to pronounce a ſingle word of ours; probably not 'only from its abounding in conſonants, but from ſome peculiarity 'in its ſtructure; for Spaniſh and Italian words, if ending in a 'vowel, they pronounced with great facility †.'—To give ſome faint idea of their language, I ſhall ſubjoin a few examples of their common words: '*Aheuh*, the noſe; *Roourou*, the hair; *Outou*, the 'mouth; *Niheo*, the teeth; *Mau-eumi*, the beard; *Tiarraboa*, the 'throat;

* Hawkeſworth's Narrative, &c. vol. 2. p. 229. † Ibid. p. 228.

'throat; *Tuamo*, the ſhoulders; *Tuah*, the back; *Oama*, the breaſt; '*Oboo*, the belly; *Rema*, the arm; *Mieu*, the nails; *Hoouhah*, the 'thighs; *Avia*, the legs; *Tapoa*, the feet; *Booa*, a hog; *Moa*, a 'fowl; *Euree*, a dog; *Ooroo*, bread-fruit; *Hearee*, cocoa-nuts; *Mia*, 'bananas; *Vaee*, wild plantains; *Poe*, beads; *Ahou*, a garment *,' &c.

Captain COOK and his aſſociates, with much attention and laudable induſtry, have publiſhed a pretty extenſive vocabulary, in alphabetical order, of the language ſpoken in ſeveral of the South Sea iſlands. They have likewiſe ſubjoined, in the form of an analogical table, ſpecimens of the languages employed in eight different iſlands; and the ſimilarities in the general ſtructure of theſe languages muſt ſurpriſe every reader, eſpecially when the great diſtances of many of theſe iſlands from each other are conſidered. I ſhall give a few examples: *A Bird*, in Otaheite, is *Manoo;* in Eaſter Iſland, *Manoo;* in the Iſland Amſterdam, *Manoo*; in Tanna, *Manoo;* in New Caledonia, *Manee*, or *Maneek*. In Otaheite, *One* is *A'Tahay;* in Eaſter Iſland, *Katta'haee;* in the Marqueſas Iſles, *Atta'hace;* in Amſterdam Iſland, *Ta'haee;* in Malicolo, *Tſee'kaee;* in Tanna, *Reedee;* in New Caledonia, *Wagee'aing*. *Two*, in Otaheite, is *E'rooa;* in Eaſter Iſland, *'Rooa;* in the Marqueſas Iſles, *A'ooa;* in Amſterdam Iſland, *E'ooa;* in Malicolo, *E'ry;* in Tanna, *'Karoo;* in New Caledonia, *'Waroo*. *Three*, in Otaheite, is *'Toroo;* in Eaſter Iſland, *'Toroo;* in the Marqueſas Iſles, *A'toroo;* in Amſterdam Iſland, *'Toroo;* in Malicolo, *E'rei;* in Tanna, *'Kahar;* in New Caledonia, *Watee'en*.

From the analogical ſpecimens of eight languages uſed in the South Sea iſlands, Captain COOK makes the following obſervations: 'It

* Hawkeſworth's Narrative, &c. vol. 2. p. 229.

'It may be eaſily perceived,' ſays he, 'that, notwithſtanding ſome 'words are entirely different, the firſt five Indian languages are 'radically the ſame, though the diſtance from Eaſter Iſland to New 'Zealand is upwards of fifteen hundred leagues. The principal 'difference conſiſts in the mode of pronunciation, which, in Eaſter 'Iſland, Amſterdam, and New Zealand, is more harſh, or guttural, 'than at the Marqueſas Iſles, or Otaheite. The other three differ 'totally, not only from the preceding, but from each other; which 'is more extraordinary than the agreement of the others, as, from 'Malicolo to Tanna, you never loſe ſight of land; nor is New Ca-'ledonia at a great diſtance from the laſt place. In the language of 'Malicolo, a great number of harſh labial ſounds prevail, very dif-'ficult to be repreſented in writing. At Tanna, the pronunciation 'is likewiſe harſh, but rather guttural; and the inhabitants of New 'Caledonia have many naſal ſounds, or ſnivel much in ſpeaking. 'It may, however, be obſerved, that, in the three laſt languages, 'ſome words are found, which ſeem to have a diſtant reſemblance 'to thoſe that go before; as *Brrooas*, in Malicolo, and *'Booga*, or '*Boogas*, in Tanna, both ſignifying a *hog*; which, at Otaheite and 'the Marqueſas, is expreſſed by the word *Böa*, and, at Amſterdam 'by *Boo'acka* *.'

With regard to *diſeaſes*, among a people whoſe food is ſo ſimple, and who are ſeldom intoxicated, their number, as might naturally be expected, is not great. 'The natives, however,' Captain Cook informs us, 'are afflicted with the eryſipelas, and cutaneous erup-'tions of the ſcaly kind, very nearly approaching to a leproſy.— 'We obſerved alſo a few who had ulcers upon different parts of 'their

* Cook's Voyage, vol. 2. p. 364. The accents at the beginning or in the middle of words denote the chief emphaſis on theſe ſyllables.

'their bodies, ſome of which had a very virulent appearance; yet 'they ſeemed not much to be regarded by thoſe who were afflicted 'with them; for they were left entirely without application even to 'keep off the flies *.' In theſe happy regions, where diſeaſes are neither numerous nor complicated, they have no profeſſional phyſicians. In Otaheite, the management of the ſick is entirely committed to the prieſts; and their method of cure conſiſts chiefly of ceremonies and prayers. 'When a prieſt,' ſays Captain COOK, 'viſits 'his patient, he repeats certain ſentences, which appear to be ſet 'forms contrived for the occaſion; and, at the ſame time, plaits 'the leaves of the cocoa-nut into different figures very neatly; ſome 'of theſe he faſtens to the fingers and toes of the ſick.—Theſe 'ceremonies are repeated till the patient recovers or dies. If he 'recovers, they ſay the *remedies cured him;* if he dies, they ſay the 'diſeaſe was *incurable;* in which, perhaps, they do not much differ 'from the *cuſtom* of other countries †.—If we had judged of their 'ſkill in ſurgery from the dreadful ſcars which we ſometimes ſaw, 'we ſhould have ſuppoſed it to be much ſuperior to the art not only 'of their phyſicians, but of ours. We ſaw one man whoſe face 'was almoſt entirely deſtroyed; his noſe, including the bone, was 'perfectly flat; and one cheek and one eye were ſo beaten in, that 'the hollow would almoſt receive a man's fiſt, yet no ulcer re-'mained ‡.'

It is painful to learn, that the intercourſe of theſe once happy and healthy people with what we call *refined* Europeans, ſhould have entailed upon them, perhaps for ever, that dreadful ſcourge the *venereal* diſeaſe! 'As it is certain,' Captain COOK remarks ‖, 'that

* Hawkeſworth's Narrative, &c. vol. 2. p. 231.
† Ibid. p. 233.
‡ Ibid.
‖ Ibid.

'that no European veſſel beſides our own, except the Dolphin, 'and the two that were under the command of Monſ. BOUGAIN-'VILLE, ever viſited this iſland, it muſt have been brought either 'by one of them, or by us. That it was not brought by the Dol-'phin, Captain WALLIS has demonſtrated in the account of her 'voyage *; and nothing is more certain than that, when we arriv-'ed, it had made moſt dreadful ravages in the iſland. One of our 'people contracted it within five days after we went on ſhore; and, 'by the inquiries among the natives, which this occaſioned, we 'learnt, when we came to underſtand a little of their language, that 'it had been brought by the veſſels which had been there about 'fifteen months before us. They diſtinguiſhed it by a name of the 'ſame import with *rottenneſs*, but of a more extenſive ſignification; 'and deſcribed, in the moſt pathetic terms, the ſufferings of the firſt 'victims to its rage; and told us, that it cauſed the hair and the 'nails to fall off, and the fleſh to rot from the bones; that it ſpread 'a univerſal terror and conſternation among them, ſo that the ſick 'were abandoned by their neareſt relations, leſt the calamity ſhould 'ſpread by contagion, and left to periſh alone in ſuch miſery, as till 'then had never been known among them.' A moſt diabolical compliment, from whatever nation it was imported, to a beautiful, an unſuſpicious, and, in a great meaſure, primatively innocent people. Such are the happy fruits of commerce! The *Arabians* gave us the *ſmall-pox*, and the *Americans* the *great*. Thus the extenſion of knowledge, by travelling and navigation, though highly acceptable to every human mind, is often productive of the moſt calamitous and deleterious effects. What are the devaſtations of war, and even of the peſtilence, when compared to the havoc daily occaſioned by theſe two accurſed diſeaſes?

It

* Vol. 1. p. 489. 490.

It is no ſmall conſolation, however, to be informed by Captain COOK, that there was ſome reaſon to hope, that the natives had diſcovered a ſpecific cure for the venereal diſeaſe; for, he remarks, during their ſtay upon the iſland, they ſaw none in whom it had made great progreſs. But the few following lines exhibit a moſt dreadful picture of the condition of theſe now unhappy people. 'We endeavoured to learn,' ſays Captain COOK, 'the medical qualities which they imputed to their plants; but our knowledge of 'their language was too imperfect for us to ſucceed. If we could 'have learnt their ſpecific for the venereal diſeaſe, if ſuch they have, 'it would have been of great advantage to us; for, when we left 'the iſland, it had been contracted by *more than half* the people on 'board the ſhip *.'

With regard to the *religion* of theſe people, Captain COOK remarks, it was difficult to acquire any clear and conſiſtent ideas. Like the religion of moſt other countries, it ſeemed to be involved in myſtery, and perplexed with inconſiſtencies. The idea of multiplication includes the intercourſe of two perſons; and, from the conjunction of two perſons, theſe people imagine every being in the univerſe to have originally proceeded. 'The ſupreme Deity,' Captain COOK remarks, 'one of thoſe two firſt beings, they call *Taroatai-* 'hetoomoo; and the other, whom they ſuppoſe to have been a rock, '*Tepapa*. A daughter of theſe was *Tettowmatatayo*, the year, or 'thirteen months collectively, which they never name but upon this 'occaſion; and ſhe, by the common father, produced the months; 'and the months, by conjunction with each other, the days. The 'ſtars they ſuppoſe partly to be the immediate offspring of the firſt 'pair, and partly to have increaſed among themſelves; and they

* Hawkeſworth's Narrative, &c. vol. 2. p. 233.

'have the ſame notion with reſpect to the different ſpecies of plants. 'Among other progeny of *Taroataihetoomoo* and Tepapa, they ſup-'poſe an inferior race of deities, whom they call *Eatuas*.'

They tell us, that two of theſe Eatuas, at a remote period, inhabited the earth, and produced the firſt man, who, being ſtimulated to propagate his kind, and having no female but his own mother, with her he begot daughters, and by theſe daughters he had other daughters for ſeveral generations, before he had a ſon. A ſon, however, at laſt made his appearance, and he, by means of his ſiſters, peopled the earth *. This ſon they called *Tane*. Taroataihetoomoo, or the ſupreme Deity, is emphatically ſtiled the great cauſer of earthquakes: But the prayers of theſe people are commonly addreſſed to *Tane*, who is ſuppoſed to take a greater intereſt in the affairs of men. Their Eatuas, or ſubordinate deities, are numerous, and ſuppoſed to be of both ſexes. The males are worſhipped by the men, and the females by the women.

Theſe people believe the immortality of the ſoul, or, at leaſt, its exiſtence in a ſtate ſeparate from the body, and that, after death, there are two ſituations ſimilar to our heaven and hell. 'The ſupe-'rior ſituation they call *Tavirua l'erai*, and the other *Tiahoboo*. They 'do not, however, conſider them as places of reward and puniſh-'ment, but as receptacles for different claſſes; the firſt, for their 'chiefs and principal people, the other, for thoſe of inferior rank; 'for they do not ſuppoſe, that their actions here in the leaſt influ-'ence their future ſtate, or indeed that they come under the cogni-'zance of their deities at all †.'

The

* Theſe ideas muſt recall to every perſon's remembrance the ſtory of *Lot* and his *daughters*.

† Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 239.

The office of prieſt, or *Tahowa*, is hereditary. The claſs is numerous, and conſiſts of all ranks. Their chief prieſt, however, is commonly the younger brother of ſome reſpectable family, and revered next to their kings. As in all ignorant countries, the prieſts of Otaheite actually poſſeſs, or pretend to poſſeſs, ſuperior knowledge; but it conſiſts chiefly in their acquaintance with the ranks and names of the various Eatuas, or ſubordinate divinities, and their opinions concerning the origin of the world and of its productions, which have been preſerved traditionally among their order: But, what is of greater conſequence, the prieſts excel the reſt of the people in the knowledge of aſtronomy and navigation; and, in their language, the name *Tahowa* denotes nothing more than a man of knowledge. There are prieſts of every claſs; but they officiate only among the reſpective claſſes to which each belongs.

In this iſland, *marriage* ſeems to be nothing more than a ſimple agreement between the man and the woman, without the intervention of any prieſt. Though the prieſts, however, receive no money for nuptial benedictions, they have appropriated two operations, the one *tattowing*, and the other *circumciſion*, from which they derive conſiderable advantages, though they appear not to have any connection with religion. 'Circumciſion,' Captain Cook remarks, 'has been 'adopted merely from motives of cleanlineſs. It cannot, indeed, pro- 'perly be called *circumciſion*, becauſe the prepuce is not mutilated by 'a circular wound, but only ſlit through the upper part, to prevent 'its contracting over the *glans*. As neither of theſe can be perform- 'ed but by a prieſt, and as to be without either is the greateſt diſ- 'grace, they may be conſidered as a claim to ſurplice fees, like our 'marriages and chriſtenings *.' It does not appear, however, that

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 241.

'hefe people are idolaters; for they neither worſhip any thing made
' their own hands, nor any viſible part of the creation. But the In-
n approaches his Morai, or place of worſhip, ' with a reverence
l humility,' Captain COOK remarks, ' that diſgraces the Chriſ-
' tian, not becauſe he holds any thing ſacred that is there, but be-
' cauſe he there worſhips an inviſible divinity, for whom, though he
' neither hopes for reward nor fears puniſhment, at his hand, he al-
' ways expreſſes the profoundeſt homage and moſt humble adora-
' tion *.'

With regard to *government*, Captain COOK informs us, that though he could not aſſert that they had any regular form ſimilar to our eſtabliſhment; ' yet,' ſays he, ' a ſubordination is eſtabliſhed ' among them, that greatly reſembles the early ſtate of every nation ' in Europe under the feudal ſyſtem, which ſecured liberty in the ' moſt licentious exceſs to a few, and entailed the moſt abject ſla-' very upon the reſt †.' Their chief orders, or claſſes, are *Earee rahie*, or King; *Earee*, Baron; *Manahouni*, vaſſal; and *Toutou*, villain. In the iſland, there are two *Earee rahies;* one is ſovereign of one of the peninſulas, and the other of the ſecond, of which their whole territory conſiſts. Theſe Kings are treated with the higheſt reſpect. The Earees are Lords or Chiefs of one or more of the diſtricts into which the peninſulas are divided; and there ſeemed to be about one hundred of them in the whole iſland. They parcel out their territories to the Manahounies, who cultivate the portions which they hold under the Barons. The *Toutous*, or loweſt claſs, perform all the ſervile offices, as the villains did in feudal governments: ' Theſe,' ſays Captain COOK, ' do all the laborious ' work; they cultivate the land under the Manahounies, who are ' only

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 241. † Ibid. p. 242.

'only nominal cultivators for the lord; they fetch wood and water, 'and, under the direction of the miſtreſs of the family, dreſs the vic- 'tuals; they alſo catch the fiſh *.'

The Earees keep a kind of courts, and have a number of attendants. The court of TOOTAHAH was the moſt ſplendid, becauſe he adminiſtered the government for his nephew, OUTOU, who was Earee rahie of Obereonoo. Captain COOK remarks a ſingular law, or cuſtom, among theſe people. 'The child of the Baron, or Earee,' he tells us, 'as well as of the ſovereign, or Earee rahie, ſucceeds to the 'title and honours of the father as ſoon as it is born: So that a ba- 'ron, who was yeſterday called *Earee*, and was approached with the 'ceremony of lowering the garments, ſo as to uncover the upper part 'of the body, is to-day, if his wife was laſt night delivered of a 'child, reduced to the rank of a private man, all marks of reſpect 'being transferred to the child, if it is ſuffered to live, though the fa- 'ther ſtill continues poſſeſſor and adminiſtrator of his eſtate †.'

With regard to *war*, if a general attack is apprehended to be made upon the iſland, every diſtrict is obliged to furniſh its proportion of fighting men. Upon ſuch critical occaſions, the united forces of the iſland are commanded by the Earee rahie. Their principal weapons are ſlings, in the uſe of which they are very dexterous, pikes headed with the ſtings of the ſting-ray fiſh, and clubs ſix or ſeven feet in length, made of a very hard and compact wood. 'Thus armed,' Captain COOK remarks, 'they are ſaid to fight with great obſtinacy, 'which is the more likely to be true, as it is certain, that they give no 'quarter to either man, woman, or child, who is ſo unfortunate as 'to fall into their hands during the battle, or for ſome hours after- 'wards,

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 243. † Ibid. p. 244.

'wards, till their paſſion, which is always violent, has ſubſided. 'The Earee rahie of Obereonoo, while we were here, was in per-'fect amity with the Earee rahie of Tiârreboo, the other peninſula*.'

Captain COOK farther remarks, that, in a government ſo rude, it is not to be expected that diſtributive juſtice ſhould be regularly adminiſtered; that, where there is ſo little oppoſition of intereſts, owing to the facility with which all the paſſions and appetites of theſe people are gratified, few crimes can exiſt; that they have nothing reſembling money; that there is no permanent good which either fraud or force can obtain; that, when all the crimes committed in civilized nations, in order to procure money, are removed, few will remain; that, by TUPIA's information, we learnt, that both theft and adultery are ſometimes committed; that in all caſes where injuries have been ſuſtained, the ſufferer, if he is able, puniſhes the offender; that adultery is ſometimes, in the firſt ardour of reſentment, puniſhed with death; but that, without circumſtances of immediate provocation, the female generally ſuffers no more than a beating. 'As pu-'niſhment, however,' ſays Captain COOK, 'is enforced by no law, 'nor taken into the hand of any magiſtrate, it is not often inflicted, 'except the injured party is the ſtrongeſt; though the chiefs do 'ſometimes puniſh their immediate dependents, for faults committed 'againſt each other, and even the dependents of others, if they are 'accuſed of any offence committed in their diſtrict †.'

From Otaheite, Captain COOK proceeded to another iſland, called *Huaheine*, which lies in the latitude of 16°. 43′ S. and longitude 150° 52′ W. from Greenwich. It is about ſeven leagues in circuit. The natives

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 244. † Ibid. p. 245.

natives of this iſland are, in general, larger and ſtronger than thoſe of Otaheite. Mr BANKS meaſured one of the men, and found him to be ſix feet three inches and an half high. Theſe people, however, notwithſtanding their ſtrength and ſtature, like moſt ſavages, are extremely lazy. Mr BANKS could not perſuade any of them to go up the hills with him; becauſe, they ſaid, the fatigue would kill them. The women here are fairer and more handſome than thoſe of Otaheite. Mr BANKS's attention was much excited by a ſingular object: 'It was,' he remarks, 'a kind of cheſt or ark, the lid of which 'was nicely ſewed on, and thatched very neatly with palm-nut 'leaves. It was fixed upon two poles, and ſupported by little arches 'of wood, very neatly carved. The uſe of the poles ſeemed to be 'to remove it from place to place, in the manner of our ſedan 'chairs.—The firſt time Mr BANKS ſaw this coffer, the aperture at 'the end was ſtopped with a piece of cloth, which, leſt he ſhould 'give offence, he left untouched. The general reſemblance between 'this repoſitory and the *Ark of the Lord* among the Jews is re-'markable; but it is ſtill more remarkable, that, upon inquiring of 'TUPIA's boy TAYETO what it was called, he ſaid *Ewharre no* '*Eatua*, the *houſe of the God.* He could, however, give no account 'of its ſignification or uſe *.'

After ſtaying ſome time on this iſland, Captain COOK made ſail for a neighbouring iſland called *Uliſtea*, which lies about ſeven or or eight leagues nearly ſouth-weſt from Huaheine. As ſoon as the ſhip came to an anchor, the natives came off in two canoes, each of which brought a woman and a pig. The women were ſuppoſed to be marks of confidence and friendſhip, and the pigs were intended as preſents. Both were received with proper acknowledgments; and

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 252.

and the ladies were complimented with a ſpike-nail and ſome beads. After the gentlemen landed, they examined a great Morai, called *Tapodeboatea*, and found it to differ much from thoſe of *Otaheite*; it conſiſted of four walls about eight feet high, and compoſed of coral ſtones, ſome of which were of a great ſize. This fabric incloſed an area of about twenty-five yards ſquare, and was filled up with ſmaller ſtones: 'Upon the top of it,' ſays Captain COOK, 'many planks 'were ſet up on an end, which were carved in their whole length. 'At a little diſtance, we found an altar, or *Ewhatta*, upon which lay 'the laſt oblation or ſacrifice, a hog of about eighty pounds weight, 'which had been offered whole, and very nicely roaſted. Here were 'alſo four or five *Ewharre no Eatua*, or houſes of God *, to which 'carriage poles were fitted, like that which we had ſeen at Huaheine. 'From hence we went to a long houſe, where, among rolls of cloth, 'and ſeveral other things, we ſaw the model of a canoe, about three 'feet long, to which were tied eight human jaw-bones. We had 'already learnt that theſe, like ſcalps among the Indians of North 'America, were trophies of war.'

Captain COOK, in his progreſs ſouthward, caſt anchor in another harbour of the ſame iſland. When the gentlemen landed, they were followed every where by men, women, and children, who ſhowed them every kind of civility. They were conducted to the houſes of the principal people, who received them in a very uncommon manner. 'The people who followed them while they were in their 'way,' Captain Cook informs us, 'ruſhed forward as ſoon as they 'came to a houſe, and went haſtily in before them, leaving however 'a lane ſufficiently wide for them to paſs. When they entered, they 'found thoſe who had preceded them ranged on each ſide of a long 'mat

* Theſe arks, or houſes of God, are very frequent in the South Sea iſlands.

'mat, which was ſpread upon the ground, and at the farther end of 'which ſat the family. In the firſt houſe they entered they found 'ſome very young women or children, dreſſed with the utmoſt 'neatneſs.—One of them was a girl about ſix years old; her gown, 'or upper garment, was red; a large quantity of plaited hair was 'wound round her head, the ornament to which they give the name 'of *Tamou*, and which they value more than any thing they poſſeſs. 'She ſat at the upper end of a mat thirty feet long.—Our gentle-'men walked up to her; and, as ſoon as they approached, ſhe 'ſtretched out her hand to receive the beads which they offered 'her, and no Princeſs in Europe could have done it with a better 'grace *.'

In the courſe of their walk, Captain COOK tells us, they met with a company of dancers, who afforded them great entertainment. The company conſiſted of two women, ſix men, and three drummers. Though they are continually going about, like the companies of Otaheite, they receive no gratuities from the ſpectators. The women wore upon their heads a conſiderable quantity of plaited hair, which was twiſted ſeveral times round, and adorned with the flowers of the Cape jeſſamine, which were arranged with great taſte, and formed a head-dreſs truly elegant. 'Their necks, ſhoul-'ders, and arms,' ſays Captain COOK, 'were naked; ſo were the 'breaſts alſo as low as the parting of the arm; below that they 'were covered with black cloth, which ſet cloſe to the body; at the 'ſide of each breaſt, next the arm, was placed a ſmall plume of 'black feathers, much in the ſame manner as our ladies now wear 'their noſegays or *bouquets*; upon their hips reſted a quantity of 'cloth, plaited very full, which reached up to the breaſt, and fell

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 263.

'down below into long petticoats, which quite concealed their feet, 'and which they managed with as much dexterity as our opera-'dancers could have done. The plaits above the waiſt were brown 'and white alternately; the petticoats below were all white. In 'this dreſs they advanced ſideways in a meaſured ſtep, keeping ex-'cellent time to the drums, which beat briſkly and loud.' They threw their bodies into poſtures, 'ſometimes ſtanding, ſometimes 'ſitting, and ſometimes reſting on their knees and elbows, the fin-'gers alſo being moved at the ſame time with a quickneſs ſcarcely 'to be imagined. Much of the dexterity of the dancers, however, 'and the entertainment of the ſpectators, conſiſted in the wanton-'neſs of their attitudes and geſtures, which was, indeed, ſuch as ex-'ceeds all deſcription *.' The men, between the dances of the women, performed a kind of dramatic interlude, which conſiſted of dialogue as well as dancing. On the following day, ſome of the gentlemen ſaw a more regular entertainment of the dramatic kind, which was divided into four acts †.

On the 5th day of Auguſt 1769, Captain COOK received from OPOONY, the formidable King of Bolabola, a preſent of three hogs, ſome fowls, ſeveral large pieces of cloth fifty yards in length, and a conſiderable quantity of plantains, cocoa-nuts, and other comfortable refreſhments. The King likewiſe ſent a meſſage, that he was upon the iſland, and intended to wait upon Captain COOK the next day, at his ſhip. During the forenoon of the next day, the expected viſit of the great King was not performed. 'In the afternoon,' Captain COOK tells us, 'as the great King would not come to us, 'we were determined to go to the great King. As he was lord of 'the Bolabola men, the conquerors of this, and the terror of all the 'other

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 264. † Ibid. p. 266.

'other iſlands, we expected to ſee a chief young and vigorous, with 'an intelligent countenance, and an interpriſing ſpirit. We found, 'however, a poor feeble wretch, withered and decrepit, and half 'blind with age.—He did not receive us ſitting, or with any ſtate 'or formality, as the other chiefs had done. We made him our 'preſent, which he accepted, and gave a hog in return. We learnt 'that his principal reſidence was at Otaha; and, upon our telling 'him that we intended to go thither in our boats the next morning, 'and that we ſhould be glad to have him along with us, he pro-'miſed to be of the party *.' In their way, they waited upon OPOONY the King, who was in his canoe, and ready to join them. When they landed at Otaha, they made him a preſent of an ax, with a view to induce him to encourage his ſubjects to bring proviſions. But the attempt was abortive; for they could not procure a ſingle article.

After leaving Otaha, in a few days, they met with another iſland, called *Obetcroa*. The boat was ſent to reconnoitre the ſhore. A number of the natives made their appearance; but they were all armed with lances and clubs, which, as a mark of defiance, they brandiſhed continually. A few of them made ſeveral attempts to board the boat and ſeize her; but all their attempts were abortive. When the boat got round a certain point of land in queſt of anchorage, it was perceived that all her hoſtile followers had deſiſted from the purſuit. After turning this point, the boat got into a large bay, at the bottom of which another body of men appeared, who were likewiſe armed with long lances. The boat puſhed toward the ſhore, in order to land; a canoe, at the ſame time, put off to meet them. They called out to the people in the canoe, that they were friends,

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 268.

and would give them nails, which were exhibited to them. 'After 'ſome heſitation,' Captain COOK tells us, 'they came up to the 'boat's ſtern, and took ſome nails that were offered them with great 'ſeeming ſatisfaction; but, in leſs than a minute, they appeared to 'have formed a deſign of boarding the boat, and making her their 'prize. Three of them ſuddenly leaped into it, and the others 'brought up the canoe, which the motion in quitting her had 'thrown off a little, manifeſtly with a deſign to follow their aſſo-'ciates, and ſupport them in their attempt. The firſt that boarded 'the boat, entered cloſe to Mr BANKS, and inſtantly ſnatched his 'powder-horn out of his pocket. Mr BANKS ſeized it, and with 'ſome difficulty wrenched it out of his hand *.' The officer then ordered two guns to be diſcharged over their heads, upon which the whole of them inſtantly leaped into the water. After ſeveral fruitleſs attempts to trade and get proviſions from theſe people, and after, by means of the ſhip and boats, having circumnavigated the iſland, the want of harbours and of anchorage, and the hoſtile diſpoſitions of the people, determined Captain COOK to leave it. This iſland is ſituated in the latitude of 22°. 27′ S. and in the longitude of 150° 47′ W. from the meridian of Greenwich. The natives ſeemed to be luſty and well-made. Their arms were lances of about twenty feet in length, made of the Etoa wood, which is very hard, and ſharpened at the point. They had likewiſe a weapon, made of the ſame wood, which anſwered the double purpoſes of club and lance. This inſtrument of deſtruction was about ſeven feet long. As a guard againſt theſe weapons, the natives, when they attack each other, defend themſelves by many folds of mats wrapped round their bodies.

From

* Hawkeſworth's Narrative of Cook's Voyage, vol. 2. p. 274.

From the iſland of Oheteroa, Captain COOK ſailed to New Zealand, where, in a bay called *Tolaga*, they found excellent wood and water; and the diſpoſitions of the natives were friendly and obliging. In their botanizing walks, Mr BANKS and Dr SOLANDER met with many houſes in the vallies which ſeemed to be entirely deſerted. The people live on the ridges of hills in a kind of ſlight ſheds. 'As they were advancing,' Captain COOK remarks,' 'in one of 'theſe vallies, the hills on each ſide of which were very ſteep, they 'were ſuddenly ſtruck with the ſight of a very extraordinary natu-'ral curioſity. It was a rock, perforated through its whole ſub-'ſtance, ſo as to form a rude but ſtupendous arch or cavern, open-'ing directly to the ſea. This aperture was ſeventy-five feet long, 'twenty-ſeven broad, and five and forty high, commanding a view 'of the bay and the hills on the other ſide, which were ſeen through 'it, and, opening at once upon the view, produced an effect far ſu-'perior to any of the contrivances of art *.'

With regard to *ſtature*, the men of New Zealand are equal to the largeſt of thoſe in Europe. They are ſtrong and well limbed, but not fat, like the luxurious natives of the South Sea iſlands. They are extremely active, vigorous, and expert in all their operations and exertions. Their colour, in general, is not more brown than that of a Spaniard, who has been expoſed to the ſun. The appearance of their women is not remarkable for female delicacy, but their voices are ſoft and agreeable; and by this circumſtance, as the dreſſes of both ſexes are the ſame, the females are chiefly diſtinguiſhed. Their hair, in general, is black. Their teeth are very regular, and as white as ivory. In both ſexes, the features are agreeable. They ſeem to enjoy high health; and ſome of them had the appearance of great age.

* Hawkeſworth's Narrative of Cook's Voyage, vol 2. p. 317.

age. Their diſpoſitions are mild and gentle, and they diſcover the moſt tender affection for each other. They are, notwithſtanding, implacable to their enemies, to whom they never give quarter, but always *eat* them. For this horrid practice, Captain COOK, though with reluctance, inſinuates, as ſome kind of an apology, that the natives, when their crops of fern-root, yams, and potatoes fail, and when fiſh, in particular ſeaſons, cannot be had in ſufficient quantity, they often ſuffer the moſt dreadful pangs of hunger, and are not unfrequently in danger of periſhing by famine.

'The ſituation and circumſtances, however, of theſe poor people,' Captain COOK remarks, 'as well as their temper, are favourable to 'thoſe who ſhall ſettle as a colony among them. Their ſituation 'ſets them in need of protection, and their temper renders it eaſy 'to attach them by kindneſs; and, whatever may be ſaid in favour 'of a ſavage life, among people who live in luxurious idleneſs upon 'the bounty of Nature, civilization would certainly be a bleſſing to 'thoſe whom her parſimony ſcarcely furniſhes with the bread of 'life, and who are perpetually *deſtroying* each other by violence, as 'the only alternative of periſhing by hunger *.

When Captain COOK firſt landed upon their coaſt, theſe people, who are habitually inured to war, and conſider every ſtranger as an enemy, were always diſpoſed to make hoſtile attacks, and to ſteal, till they were taught the deſtructive effects of fire-arms. But, after being convinced, that ſuperiority of power by no means conſiſted in numbers alone, they became both friendly and hoſpitable, and exhibited the moſt unbounded confidence in their unknown viſitors. Both ſexes mark their faces and bodies with black ſtains, called *Amoco*, ſimilar

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 449.

ſimilar to the tattowing in Otaheite. The men, particularly, add new ſtains every year; ſo that, in an advanced period of life, they are almoſt covered from head to foot. 'Beſides the Amoco,' ſays Captain COOK, 'they have marks impreſſed by a method unknown 'to us, of a very extraordinary kind. They are furrows of about a line 'deep, and a line broad, ſuch as appear upon the bark of a tree which 'has been cut through, after a year's growth. The edges of theſe 'furrows are afterwards indented by the ſame method, and, being 'perfectly black, they make a moſt frightful appearance *.' The faces of the old men are almoſt totally covered with theſe marks. Thoſe who are very young, like the women, black only their lips; but, as they grow old, they gradually increaſe theſe ſuppoſed ornaments. The lines upon the face are generally ſpirals, and are drawn with great dexterity and elegance; for the marks on one ſide correſpond exactly with thoſe on the other. The marks on the body have ſome reſemblance to the foliage in old chaſed ornaments, and the convolutions of fillagra-work, in which they exhibit a great luxuriance of fancy. Beſides, theſe people not only dye, but paint their ſkins with red oker. The dreſs of a New Zealander has an uncouth appearance. It conſiſts of the leaves of the flag, ſplit into two or three ſlips. When dry, the ſlips are interwoven with each other, and form a kind of ſtuff between netting and cloth. Of two pieces of this cloth they make a complete dreſs; one of them is tied over the ſhoulders, and reaches as low as the knees; and the other piece is wrapped round the waiſt, and reaches nearly to the ground. Beſide this coarſe flag, they make two ſorts of cloth with a ſmooth ſurface, and very ingeniouſly manufactured. One ſort reſembles our canvas, but is much ſtronger. The other kind is formed by many threads lying very cloſe one way; and a few croſs them the other, with

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 452.

with a view to bind them together. But theſe laſt are about half an inch aſunder, reſembling thoſe round pieces of cane matting occaſionally placed under the diſhes of our tables. Both theſe kinds of cloth they ornament with neat ſtitched borders of various colours and patterns, not unlike thoſe made uſe of in the ſamplars which our young girls work when at ſchool. But the ornament they eſteem the moſt conſiſts of ſtripes of their dogs fur, placed at conſiderable diſtances from each other. Inſtead of fur, the red feathers of the parrot are ſometimes employed.

In New Zealand, the women, contrary to the general diſpoſition of the ſex, ſeemed not to be ſo fond of finery as the men. They did not adorn their heads with feathers. Their garments were made in the ſame form, and of the ſame materials as thoſe of the men.

Both ſexes bore their ears. They gradually ſtretch the holes till they are ſo large as to admit a finger. Into theſe holes they put different kinds of ornaments, ſuch as feathers, coloured cloth, bones of birds, and ſometimes a twig of wood. Into the ſame receptacles they commonly put the nails they received from the ſhips. The down of the albatroſs, which is as white as ſnow, the women thruſt through theſe holes. This down, when before and behind the hole in a bunch about the ſize of a fiſt, exhibits, we are told, a very ſingular, but not a diſagreeable appearance. 'Beſides the ornaments,' ſays Captain COOK, 'that are thruſt through the ears, many others 'are ſuſpended to them by ſtrings; ſuch as chiſſels or bodkins 'made of green talc, upon which they ſet a high value; the nails 'and teeth of their deceaſed relations, the teeth of dogs, and every 'thing elſe that they can get, which they think either curious or 'valuable. The women alſo wear bracelets and anclets, made of

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'the bones of birds, ſhells, or any other ſubſtances which they can 'perforate and ſtring upon a thread. The men ſometimes hanging 'to a ſtring, which went round the neck, a piece of green talc, or 'whalebone, ſomewhat in the ſhape of a tongue, with the rude fi-'gure of a man carved upon it; and upon this ornament they ſet a 'high value *.'

Their houſes, Captain Cook informs us, are very inartificial, hardly equalling, except in ſize, a dog-kennel. They ſeldom exceed eighteen or twenty feet in length, eight or ten in breadth, and five or ſix in height, from the pole that forms the ridge, to the ground. The framing is made of wood; and both walls and roof conſiſt of dried graſs very cloſely ſtuffed together. Some of their houſes are likewiſe lined with the bark of trees, which gives the inhabitants a very comfortable retreat. The roofs ſlope, like thoſe of our barns. The door, or rather hole, is at one end of the edifice, and is no higher than to admit a perſon creeping on his hands and knees.

The *furniture* of their houſes conſiſts of very few articles; for one cheſt generally contains the whole, if we except their proviſion-baſkets, the gourds which contain their freſh-water, and the hamoners employed in beating their fern-roots. Some rude tools, their clothes, and feathers to ſtick in their hair, compoſe the reſt of their treaſure.

Poſſeſſing no veſſel capable of boiling water, their *cookery* is wholly confined to baking and roaſting, which are performed nearly in the ſame manner as by the natives of the South Sea iſlands.

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 457

Theſe people are extremely ingenious in the conſtruction of their *canoes*. The larger kind, which are often ſixty-eight feet long, five feet broad, and three feet and an half deep, are chiefly employed in war. Of armed men, they will carry eighty or even an hundred. The head and ſtern of theſe canoes are ornamented with carved work of various kinds, ſome of which are not inelegant, and others have a moſt groteſque appearance. The head and ſtern of their ſmaller canoes, whoſe chief deſtination is for fiſhing, are ornamented with the figure of a man, whoſe face is ugly in the extreme, with a monſtrous tongue lolling out of his mouth; and the eyes are compoſed of the white ſhells of ſea-ears.

With regard to the *tools* employed in fabricating their different pieces of workmanſhip; they conſiſt of adzes, axes, and chiſſels, which laſt they likewiſe uſe as augres for perforating or making holes in particular ſubſtances. Having no metals, or at leaſt not knowing how to extract them from their reſpective ores, their adzes and axes are made of a hard black ſtone, or of a green talc, which has the properties both of hardneſs and toughneſs; and their chiſſels of human bones, or ſmall fragments of jaſpar.

As to *civil government*, Captain COOK and the other gentlemen could procure little information. They, however, diſcovered, that, in this part of the iſland, the natives acknowledged one Chief, or King, whoſe name was *TERATU*. His territory, as an Indian monarch, is extenſive; for, Captain COOK remarks, he was acknowledged from Cape Kidnappers to the north; and weſt as far as the Bay of Plenty, a length of coaſt upwards of eighty leagues *. In the dominions

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 470.

dominions of TERATU, there are ſeveral ſubordinate chiefs, who were held in great veneration, and who probably were the adminiſtrators of juſtice: 'For,' ſays Captain COOK, 'upon our complaint 'to one of them, of a theft that had been committed on board the 'ſhip by a man that came with him, he gave him ſeveral blows 'and kicks, which the other received as the chaſtiſement of autho-'rity, againſt which no reſiſtance was to be made, and which he 'had no right to reſent. Whether this authority was poſſeſſed by 'appointment or inheritance, we could not learn; but we obſerved 'that the chiefs were all elderly men. In other parts, however, we 'learnt that they poſſeſſed their authority by inheritance *.

With regard to the *religion* of the New Zealanders, all that could be learnt was, that they recognize the influence of ſuperior beings, of whom one is ſupreme, and the others ſubordinate, and have nearly the ſame notions of the origin of the world, and the production of mankind, as thoſe of the Otaheiteans. What homage they pay to theſe deities could not be learnt; for they ſeemed to have no places of public worſhip, like the Morais of the South Sea iſlands.

From New Zealand, Captain COOK proceeded to New Holland, now called *New South Wales*. He entered a bay on the eaſt ſide of the iſland, which, from the number of new plants collected by Mr BANKS and the other gentlemen, received the appellation of *Botany Bay*. In their progreſs along the coaſts of this bay, they ſaw ſeveral of the natives; and they remarked a very ſingular circumſtance in their oeconomy: Not one of them, men, women, or children, had the ſmalleſt veſtige of clothing on any part of their bodies, but the whole, without reſerve, was expoſed to public view. Notwithſtanding

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 471.

ing this defenceleſs condition, they were extremely hoſtile, and ſo intrepid, that two men, armed with a lance of about ten feet in length, and a ſhort club or ſtick, boldly attacked no leſs than forty of the ſhip's company. By way of enticement, and to procure reconciliation and mutual confidence, beads, ribbons, pieces of cloth, and other articles, were left in one of their houſes. Experiments of this kind were frequently repeated, but without producing the deſired effect; for, after examining theſe houſes many days after the preſents had been depoſited, they were held by them in ſuch ſovereign contempt, that the natives ſeemed not even to have touched them. Theſe bold people, however, after they had diſcovered the powerful effects of fire-arms, turned quite daſtardly, and, whenever they perceived any of the Europeans, though invited by every poſſible expreſſion of amity, would never admit any intercourſe, but uniformly fled into the woods.

New Holland, or New South Wales, is an iſland of immenſe extent. Captain COOK ſailed along its whole eaſtern coaſt, and found that its length, when reduced to a ſtraight line, is at leaſt twenty-ſeven degrees of latitude, amounting to about 2000 miles; hence he concludes, that its ſquare ſurface muſt far exceed that of all Europe. In this great range of coaſt, he had frequent occaſion to ſee many of the inhabitants. But, though ſome of them ventured near the ſhip, it was always with a hoſtile intention; and they could not, by alluring arts, bribes, and every poſſible mark of friendſhip, be induced to put any confidence in the Europeans. It was formerly mentioned, that the inhabitants of Botany Bay, both males and females, went ſtark naked, not employing even the ſimple veil of a fig-leaf. The ſame practice Captain COOK found to be univerſal through the whole extent of the eaſt coaſt of New South Wales, or New Holland. As

far as Captain Cook and the other gentlemen could diſcover, this immenſe territory appeared to be totally uncultivated. The ſea affords much more liberal ſupplies of food to the inhabitants than the land. The fiſhes are of various kinds; but, if we except the mullet and a few ſhell-fiſh, the reſt are unknown in Europe. The reef and the ſhoals are frequented by incredible numbers of the fineſt green turtle, and oyſters of different ſpecies.

In this country, the number of inhabitants ſeems to bear no proportion to the extent of territory. 'We never ſaw,' ſays Captain Cook, 'ſo many of them as thirty together but once, and that was 'at Botany Bay, when men, women, and children, aſſembled upon 'a rock to ſee the ſhip paſs by: When they manifeſtly formed a 'reſolution to engage us, they never could muſter above fourteen or 'fifteen fighting men; and we never ſaw a number of their ſheds or 'houſes together that could accommodate a larger party *.'

We are informed by Captain Cook, that the men of this country are of a middle ſize, generally well made, clean limbed, and remarkably active, nimble, and vigorous; that there is a conſiderable expreſſion in their countenances, and their voices are very ſoft and effeminate; that their ſkins are ſo beſmeared with dirt, that it is difficult to aſcertain their real colour; that the dirt makes them appear nearly as black as Negroes; but that, by rubbing off the dirt, their genuine colour is a chocolate. Their features are by no means diſagreeable, neither are their noſes flat, nor their lips thick. Their teeth are white and even; and their hair, though frequently cropped, is naturally long and black: It was, in general, matted and filthy, though they uſe neither oil nor greaſe; yet what is aſtoniſhing, their heads

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 631.

heads were not infeſted with vermin. Their chief *ornament* is a bone, which is thruſt through a hole bored in the cartilage which divides the noſtrils. This bone is as thick as a man's finger, and ſix inches in length. It reaches quite acroſs the face; 'and ſo effectually,' Captain COOK informs us, 'ſtops up both noſtrils, that they are forced 'to keep their mouths wide open for breath, and ſnuffle ſo when they 'attempt to ſpeak, that they are ſcarcely intelligible to each other. 'Our ſeamen, with ſome humour, called it their *ſprit ſail-yard*; and 'indeed it had ſo ludicrous an appearance, that, till we were uſed to 'it, we found it difficult to reſtrain from laughter *.' They likewiſe wear necklaces made of ſhells, cut very neatly, and ſtrung together, bracelets of ſmall cord wound about the upper part of the arm, and a ſmall ſtring of plaited human hair tied round the waiſt. Beſides theſe, ſome of the natives uſed gorgets of ſhells which hung round the neck, and reached acroſs the breaſt. Though they uſe no clothes of any kind, their bodies have two coverings, one of dirt, and the other of paint, which laſt. They paint their whole bodies and limbs with patches of red and ſtripes of white, and not without diſplaying ſome degree of taſte. Upon their ſkin no veſtiges of diſeaſe or ſores were to be ſeen, except large ſcars diſpoſed in irregular lines, which were the remains of wounds they had inflicted upon themſelves as memorials of grief for the dead.

They ſeemed to have no fixed habitations; for neither towns nor villages were obſerved in the whole country. Their houſes, or rather hovels, were equally wretched and deſtitute of conveniences as thoſe at Terra del Fuego. At Botany Bay, where their habitations were beſt, they were juſt high enough for a man to ſit upright in, but not ſufficiently large to allow him to extend himſelf in any direction.

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 633.

rection. They are built of pliable rods, about the thickneſs of a man's finger, which are bent in the form of an oven, by ſticking the two ends in the ground, and then covering them with pieces of bark and palm-leaves. Under theſe houſes, or ſheds, the natives ſleep, with their heels coiled up to their heads. In this ſtrange poſition, one of thoſe hovels will contain three or four perſons. The furniture of theſe houſes conſiſts chiefly of an oblong veſſel made of bark, and is uſed for bringing water from the ſpring; and a ſmall bag, about the ſize of a moderate cabbage-net, which they make by laying threads, or fibres, loop within loop, ſomething ſimilar to our manner of making purſes. 'This bag,' ſays Captain COOK, 'the 'man carries looſe upon his back by a ſmall ſtring which paſſes over 'his head; it generally contains a lump or two of paint and reſin, 'ſome fiſh-hooks and lines, a ſhell or two, out of which their hooks 'are made, a few points of darts, and their uſual ornaments, which in-'cludes the whole worldly treaſure of the richeſt man among them*.'

Fiſh is their principal *food*, though they contrive ſometimes to kill the kanguroo, and even various kinds of birds. The yam is their chief article of vegetable food; but they alſo uſe ſeveral fruits, which their country ſpontaneouſly produces. Having no nets, they catch fiſh ſolely by ſtriking, and by hook and line.

The *weapons* of the New Hollanders conſiſt of ſpears and lances of different kinds. On the ſouthern part of the coaſt, ſome of them had fourteen ongs pointed with bone, and barbed. Theſe barbed lances are dreadful weapons; for, when once they take place, they can never be extracted without tearing away the fleſh. Theſe weapons are thrown with great dexterity and force.

The

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p.

The *canoes* of the New Hollanders, eſpecially on the ſouthern part of the coaſt, are as rude as their habitations. They conſiſt of a ſingle piece of bark, about twelve feet in length, tied at the ends, and kept open in the middle by ſpars of wood. They draw but little water, and are ſo light that they eaſily go upon mud-banks in order to gather ſhell-fiſhes. Farther to the northward, the canoes are made of hollowed trunks of trees, about fourteen feet in length; and, as they are very narrow, to prevent their overſetting, they are furniſhed with an outrigger. Theſe veſſels, however, cannot carry more than four perſons.

From New Holland, Captain COOK directed his courſe for *New Guinea*. Captain COOK, Dr SOLANDER, and Mr BANKS, with their attendants, amounting to twelve men, well armed, approached the ſhore in the pinnace without moleſtation, and even without ſeeing any of the natives. This iſland ſeemed to abound with plantains, cocoa-nuts, and bread-fruit: But the gentlemen, dreading bad conſequences from the Indians, did not venture to cut down any of the trees. After advancing about a quarter of a mile from the boat, three of the natives, at about a hundred yards diſtance, ruſhed out of the wood, making a moſt hideous noiſe. 'As they ran towards us,' ſays Captain COOK, 'the foremoſt threw ſomething out of his hand, 'which flew on one ſide of him, and burnt exactly like gun-powder, 'but made no report. The other two inſtantly threw their lances 'at us; and, as no time was now to be loſt, we diſcharged our 'pieces, which were loaded with ſmall ſhot. It is probable that 'they did not feel the ſhot; for, though they halted a moment, they 'did not retreat; and a third dart was thrown at us. We then 'loaded our pieces with ball, and fired a ſecond time. By this diſ-'charge it is probable that ſome of them were wounded; yet we

'had

'had the ſatisfaction to ſee that they all ran away with great agi-
'lity *.' While Captain COOK and his attendants were returning to their boat, ſeveral of the natives were ſeen coming round a point, which was at the diſtance of about five hundred yards. Their number appeared to be between ſixty and a hundred. 'We now,' ſays Captain COOK, 'took a view of them at our leiſure. They 'made much the ſame appearance as the New Hollanders, being 'nearly of the ſame ſtature, and having their hair ſhort cropped. 'Like them alſo they were all ſtark naked.—All this while they were 'ſhouting defiance, and letting off their fires by four or five at a 'time. What theſe fires were, or for what purpoſe intended, we 'could not imagine.—This wonderful phenomenon was obſerved 'from the ſhip, and the deception was ſo great, that the people on 'board thought they had fire-arms; and, in the boat, if we had not 'been ſo near as that we muſt have heard the report, we ſhould 'have thought they had been firing volleys †.'

Captain COOK next reached the iſland of *Savu*, which lies in the latitude of about ten degrees ſouth. This iſland produces a great variety of vegetables; as the fan-palm, the cocoa-nut, tamarind, limes, oranges, mangoes, maize, Guinea corn, rice, millet, callevances, water-melons, cellery, marjoram, fennel, betle, areca, tobacco, cotton, indico, &c. The tame, or domeſtic animals, are likewiſe numerous and abundant; as buffaloes, ſheep, goats, hogs, horſes, aſſes, dogs, cats, fowls, pigeons, &c.

The natives of Savu are rather below than above the middling ſize. The women, particularly, are remarkably ſhort and ſquat; their complexion is a dark brown, and their hair is univerſally black and lank. The men, in general, are well made, vigorous, and active,

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 656. † Ibid. p. 658.

and have an uncommon variety in the diſpoſition of their features. The countenances of the women, on the contrary, are uniformly alike. Both ſexes, by means of pincers, eradicate the hair from their arm-pits; and the men do the ſame with the hair on their beards. Both men and women wear garments made of cotton cloth dyed blue, and have not an inelegant appearance. Theſe people uſe a great variety of ornaments. Thoſe who are comparatively wealthy, have chains of plated gold-wire round their necks. 'They have 'alſo ornaments of beads,' Captain COOK informs us, 'which ſome 'wear round their necks as a ſolitaire, and others, as bracelets, upon 'their wriſts. Theſe are common to both ſexes; but the women 'have, beſides, ſtrings or girdles of beads, which they wear round 'their waiſts, and which ſerve to keep up their petticoat. Both 'ſexes had their ears bored, yet we never ſaw an ornament in any 'of them.—We ſaw ſome boys, who had ſpiral circles of thick 'braſs wire paſſed three or four times round their arms, above the 'elbow; and ſome men wore rings of ivory, two inches in breadth, 'and above an inch in thickneſs, upon the ſame part of the arm. 'Theſe, we were told, were the ſons of Rajas, or Chiefs, who wore 'theſe cumbrous ornaments as badges of their high birth. Almoſt 'all the men had their names traced upon their arms, in indelible 'characters of a black colour; and the women had a ſquare orna-'ment of flouriſhed lines, impreſſed in the ſame manner, juſt under 'the bend of the elbow *.' Captain COOK likewiſe tells us, that he and the other gentlemen were ſtruck with the ſimilarity of theſe marks to thoſe made by tattowing in the iſlands of the South Sea.

In *Savu*, the *houſes* are all conſtructed on the ſame plan, their dimenſions being only larger or ſmaller in proportion to the wealth or rank

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 686.

rank of the proprietor. Some of them were four hundred feet in length, and others not above twenty. They are erected upon poſts of wood, about four feet in height, one end of which is driven into the ground, and upon the other a floor of wood is laid. Upon this floor other poſts are placed, and ſupport a roof with ſloping ſides, like our barns.

With regard to *food*, theſe people uſe every tame animal in their poſſeſſion, as hogs, horſes, buffaloes, poultry; and they even prefer dogs and cats to ſheep and goats. They are not very fond of fiſh, which is eaten chiefly by the poorer people. The fan-palm tree anſwers as a ſuccedaneum for almoſt every other ſpecies of food both to man and beaſt. A kind of wine, called *tuac*, or *toddy*, is procured by wounding the flower-buds ſoon after they appear, and fixing under them little baſkets, made of the leaves, which are ſo cloſe that they eaſily retain fluids. This juice is collected every morning and evening, and ſupplies with drink the whole inhabitants of the iſland. Of the ſurplus of this valuable and ſalutary juice, the natives make both a ſyrup and a coarſe ſugar. This juice, along with the huſks of rice, is given to the hogs, which, without any other nutriment, renders them prodigiouſly fat. In this iſland, both ſexes are enſlaved by the pernicious habit of chewing betle and areca, which they practiſe inceſſantly. With theſe ſubſtances they mix a kind of lime, made of ſhells and coral, and a quantity of tobacco. Hence their mouths are highly diſguſtful both to the ſight and to the ſmell. The lime and tobacco rot their teeth in ſuch a manner, that, in a ſhort time, they are totally covered by the gums.

The iſland of Savu is divided into five principalities, each of which is under the dominion of a Raja, or Chief. When differences

ariſe among the inhabitants of any diſtrict, they are ſettled, without delay or appeal, by the Raja and his counſellors. There ſeemed not to be any intermediate rank between the Raja and the land-owners; and theſe laſt were eſteemed and reſpected in proportion to the extent and value of their poſſeſſions. The inferior orders of the natives conſiſt of manufacturers, labouring poor, and ſlaves. Like the peaſants in ſome parts of Europe ſtill, and formerly over all Europe, when the feudal ſyſtem prevailed, the ſlaves deſcend, and are conſidered as appendages of the land. Their chief object of pride, like that of the Scots and Welch, is a long pedigree of reſpectable anceſtors; and, of courſe, their veneration for antiquities of every kind is exceſſive. Near the principal town of his province, every ſucceſſive Raja erects, as a memorial of his reign, a large ſtone. Theſe ſtones are often of ſuch an enormous ſize, that, how they could be brought to their preſent ſituation, it is difficult to conceive, even though all our mechanical powers had, for centuries paſt, been perfectly known among the natives of this iſland. Theſe ſtones not only ſerve as records of the reigns of their Princes; but, when a Raja dies, a general feaſt is proclaimed through his dominions, and all his ſubjects aſſemble round the ſtones, and feaſt for weeks, and ſometimes months, according to the quantity of live ſtock they can procure *.

'The *religion* of theſe people,' ſays Captain COOK, 'according 'to Mr LANGE's information, is an abſurd kind of Paganiſm, every 'man chuſing his own god, and determining for himſelf how he 'ſhould be worſhipped; ſo that there are almoſt as many gods and 'modes of worſhip as people. In their morals, however, they are 'ſaid to be irreproachable, even upon the principles of Chriſtianity. 'No

* See Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 694.

'No man is allowed more than one wife; yet an illicit commerce 'between the ſexes is in a manner unknown among them; and in- 'ſtances of theft are very rare *.

From Savu, Captain Cook ſailed to *Java*, the capital of which is *Batavia*. Around this city, for ſeveral miles, is a continued range of country houſes and gardens. Many of theſe gardens are very large, and, by ſome odd taſte, or rather ſtrange fatality, they are planted with numerous trees, which deprives the air of that ſalubrity formerly derived to the iſland from its being originally cleared of wood. Theſe thick and almoſt impenetrable foreſts ſtand in a dead flat, which extends ſome miles beyond them, and is interſected in almoſt every direction by ſluggiſh rivers, and ſtill more by artificial canals for the navigation of ſmall veſſels. Beſides, the fence of every field and garden is a ditch; and, to add to the calamitous effects of an atmoſphere impregnated with all the ſeeds of diſeaſe and death, the cultivated grounds are interſperſed with noxious fens, bogs, and moraſſes.

'It is not ſtrange,' Captain Cook judiciouſly remarks, 'that the 'inhabitants of ſuch a country ſhould be familiar with diſeaſe and 'death. Preventive medicines are taken almoſt as regularly as food; 'and every body expects the returns of ſickneſs, as we do the ſea- 'ſons of the year. We did not ſee a ſingle face in Batavia that in- 'dicated perfect health; for there is not the leaſt tint of colour in 'the cheeks either of man or woman. The women, indeed, are 'moſt delicately fair; but, with the appearance of diſeaſe, there ne- 'ver can be perfect beauty. People talk of death with as much in- 'difference as they do in a camp; and, when an acquaintance is ſaid 'to

* See Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 697.

' to be dead, the common reply is, " Well, he owed me nothing ;"
' or, " I muſt get my money of his executors."

Such a country, and ſuch a picture of human miſery, and of human deſtruction, impreſſes the mind with many of the moſt painful feelings. One would be tempted to wiſh, that an iſland, ſo deleterious to our ſpecies, ſhould at once be ſwallowed up by the ocean. According to our conceptions, ſuch a revolution would be a moſt benevolent act of Providence. But here we muſt pauſe. The Dutch, who are, perhaps, the moſt commercial, and, of courſe, the moſt ſelfiſh, intereſted, and unfeeling people in Europe, inſtead of draining this iſland, and clearing it of noxious wood, have augmented its natural evils, by multiplying trees, ditches, canals, and every other nuiſance which could render the place ſtill more deſtructive to its inhabitants. Here Providence is entirely exculpated. If the Dutch, inſtead of their former and preſent mode of management, had cleared the iſland of ſuperfluous trees, drained its marſhes, and erected their houſes on more elevated ſituations, Java, now the almoſt certain grave of every European who ventures to reſide in it for any length of time, might have been one of the moſt pleaſant, as well as moſt wholeſome iſlands on this globe.

This iſland preſents to the view of ſtrangers the moſt heterogeneous mixture of human beings, croſſed in their production, by an amazing number of bizarre combinations. In the town of Batavia, and the adjacent country, the Indians, as they are called, are not the genuine natives of the iſland of Java, but ſpurious commixtures originating from the various iſlands from which the Dutch import ſlaves. In this country, both ſexes bathe themſelves in the river at leaſt once a-

day,

day, a practice, in hot climates, equally neceſſary to health and to perſonal delicacy.

Among the Batavians, the brutal, or rather mad cuſtom, called *running a muck*, is very ancient and ſtill prevails. To run *a muck*, in the original ſenſe of the word, is firſt to get drunk with eating opium, and then run into the ſtreet with a naked ſword, or other weapon, and kill whoever comes in the way, till the frantic perſon himſelf is either killed or taken priſoner. 'Of this,' ſays Captain COOK, 'ſeveral inſtances happened while we were at Batavia; and one of 'the officers, whoſe buſineſs it is, among other things, to apprehend 'ſuch people, told us, that there was ſcarcely a week in which he, 'or ſome of his brethren, were not called upon to take ſome of them 'into cuſtody. In one of the inſtances that came to our knowledge, 'the party had been ſeverely injured by the perfidy of women, and 'was mad with jealouſy before he made himſelf drunk with opium; 'and we were told, that the Indian who runs *a muck* is always firſt 'driven to deſperation by ſome outrage, and always firſt revenges 'himſelf upon thoſe who have done him wrong. We were alſo 'told, that, though theſe unhappy wretches afterwards run into the 'ſtreet with a weapon in their hand, frantic and foaming at the 'mouth, yet they never kill any but thoſe who attempt to apprehend 'them, or thoſe whom they ſuſpect of ſuch an intention, and that 'whoever gives them way is ſafe. If the officer takes one of theſe '*amocks*, or *mohawks*, as they have been called by an eaſy corruption, his reward is very conſiderable; yet, ſuch is the fury of their 'deſperation, that three out of four are of neceſſity deſtroyed in the 'attempt to ſecure them, though the officers are provided with inſtruments, like large tongs or pincers, to lay hold of them without

'coming

'coming within reach of their weapon *.' Such of theſe unhappy wretches as are taken alive, are broken upon the wheel at the place where they committed the firſt murder.

With regard to *religion*, theſe people are not ſingular in obſerving the moſt abſurd practices, and in believing the moſt ridiculous opinions. They believe that the Devil, whom, it is not incurious, they denominate *Satan*, is the being who gives riſe to all the diſeaſes and all the calamities of human life. Hence, when they are ſick, or in any diſtreſsful circumſtances, as a propitiation, they conſecrate, to this ideal enemy of mankind, meat, money, &c. 'If,' ſays Captain COOK, 'any one among them is reſtleſs, and dreams for two or three 'nights ſucceſſively, he concludes that Satan has taken that method 'of laying his commands upon him, which if he neglects to fulfil, 'he will certainly ſuffer ſickneſs or death, though they are not re-'vealed with ſufficient perſpicuity to aſcertain their meaning †.' Theſe people entertain another ſuperſtitious notion, which has ſtill leſs connection with the general train of human conceptions. They believe that a woman, when delivered of a child, frequently, at the ſame time, brings forth a young crocodile, as a twin to the infant. 'They 'believe,' Captain COOK informs us, 'that theſe creatures are re-'ceived moſt carefully by the midwife, and immediately carried 'down to the river, and put into the water. The family in which 'ſuch a birth is ſuppoſed to have happened, conſtantly put victuals 'into the river for their amphibious relation, and eſpecially the twin, 'who, as long as he lives, goes down to the river, at ſtated ſeaſons, 'to fulfil his fraternal duty; for the neglect of which, it is the uni-'verſal opinion, that he will be viſited with ſickneſs or death ‡.'

The

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 754. *et ſeqq.*

† Ibid. p. 755. ‡ Ibid. p. 756.

Theſe crocodile twins, in that country, are called *Sudaras*, of which many ridiculous ſtories are related, and believed. The Bougis, Boctons, and Macaſſars, firmly perſuaded that they have crocodile relations in their rivers, perform a periodical ceremony in remembrance of them. 'Large parties of them,' we are informed by Captain COOK, 'go out in a boat, furniſhed with great plenty of proviſions, 'and all kinds of muſic, and row backwards and forwards, in places 'where crocodiles and alligators are moſt common, ſinging and weeping by turns, each invoking his kindred, till a crocodile appears, 'when the muſic inſtantly ſtops, and proviſions, betle, and tobacco, 'are thrown into the water *.'

In Java, except the native Indians, the Chineſe are the moſt numerous claſs of inhabitants, and are both an induſtrious and ingenious people. They employ themſelves as ſhip-carpenters, ſmiths, joiners, tailors, makers of ſlippers, dyers of cotton, and embroiderers. Some of them are likewiſe diſperſed through different parts of the country, where they cultivate gardens, ſow rice, plant ſugar-canes, or feed cattle and buffaloes, the milk of which they bring daily to Batavia for ſale. Their induſtry is great and highly laudable; but other parts of their character are deteſtable. 'There is nothing,' Captain COOK remarks, 'clean or dirty, honeſt or diſhoneſt, provided there is not 'too much danger of a halter, that the Chineſe will not readily do 'for money. But, though they work with great diligence, and patiently undergo any degree of labour; yet, no ſooner have they 'laid down their tools, than they begin to game at cards, dice, &c.' 'To gaming,' continues our author, 'they apply with ſuch eagerneſs, 'as ſcarcely to allow time for the neceſſary refreſhments of food and 'ſleep; ſo that it is as rare to ſee a Chineſe idle, as it is to ſee a

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 759.

'Dutchman or an Indian employed. In manners, they are always 'civil, or rather obſequious; and, in dreſs, they are remarkably clean 'and neat, to whatever rank of life they belong *.'

The Chineſe, in general, are eaſily ſatisfied with food. That of the poorer people conſiſts of rice, with a ſmall proportion of fleſh or fiſh. 'They have greatly the advantage,' ſays Captain COOK, 'of 'the Mahometan Indians, whoſe religion forbids them to eat of 'many things which they could moſt eaſily procure. The Chineſe, 'on the contrary, being under no reſtraint, eat, beſides pork, dogs, 'cats, frogs, lizards, ſerpents of many kinds, and a great variety of 'ſea-animals, which the other inhabitants of this country do not con-'ſider as food. They eat alſo many vegetables, which an European, 'except he was periſhing with hunger, would never touch †.'

With regard to the *burial* of their dead, the Chineſe obſerve a ſingular cuſtom, or rather ſuperſtition. Where a body has been interred, they will not open the ſame ground a ſecond time. Hence their burying-grounds, in the environs of Batavia, occupy many hundred acres; and the Dutch, who grudge the waſte of ſo much uſeful land, refuſe to ſell any for this purpoſe, without receiving moſt exorbitant prices. The money, however, is commonly raiſed. 'Under the 'influence,' ſays Captain COOK, 'of this univerſal prejudice, they 'take an uncommon method to preſerve the body entire, and prevent 'the remains of it from being mixed with the earth that ſurrounds 'it. They incloſe it in a large thick coffin of wood, not made of 'planks joined together, but hollowed out of the ſolid timber, like a 'canoe. This being covered, and let down into the grave, is ſur-'rounded with a coat of their mortar, called *Chinam*, about eight or

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* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 7[illegible]. † Ibid.

'ten inches thick, which, in a ſhort time, becomes as hard as a ſtone. 'The relations of the deceaſed attend the funeral ceremony, with a 'conſiderable number of women that are hired to weep *.'

Slaves form another, and a numerous, claſs of the inhabitants of this country. The Dutch, the Portugueſe, and even the Indians, are conſtantly attended and ſerved by ſlaves, who are purchaſed from Sumatra, Malacca, and moſt of the Eaſtern iſlands. Theſe ſlaves, Captain COOK informs us, 'are a very lazy ſet of people; but, as they 'do but little work, they are content with a little victuals, ſubſiſting altogether upon boiled rice, and a ſmall quantity of the cheapeſt 'fiſh. As they are natives of different countries, they differ from 'each other extremely both in perſon and diſpoſition. The African 'Negroes, called here *Papua*, are the worſt, and conſequently may 'be purchaſed for the leaſt money. They are all thieves, and 'all incorrigible. Next to theſe are the Bougis and Macaſſars, 'both from the iſland of Celebes: Theſe are lazy in the higheſt degree; and, though not ſo much addicted to theft as the Negroes, 'have a cruel and vindictive ſpirit, which renders them extremely 'dangerous; eſpecially as, to gratify their reſentment, they will make 'no ſcruple of ſacrificing life †.' With reſpect to any puniſhment leſs than death, theſe ſlaves are entirely under the dominion of their maſters.

From the iſland of Java, Captain COOK proceeded to the CAPE OF GOOD HOPE, a country, he remarks, which has been ſo often deſcribed, and is ſo well known in Europe, that he confines his obſervations to a few facts which had either been omitted or miſrepreſented by preceding voyagers.

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 761. † Ibid. p. 762.

Notwithſtanding the favourable, and even ſplendid, repreſentations which have repeatedly been given of this country, Captain Cook tells us, that, during his whole moſt extenſive voyage, 'he never ſaw a 'more forlorn appearance, nor in reality a more ſterile deſert. The 'land over the Cape, which conſtitutes the peninſula formed by 'Table Bay on the north, and Falſe Bay on the ſouth, conſiſts of 'high mountains, altogether naked and deſolate. The land behind 'theſe to the eaſt, which may be conſidered as the iſthmus, is a plain 'of vaſt extent, conſiſting almoſt wholly of a light kind of ſea-ſand, 'which produces nothing but heath, and is utterly incapable of 'cultivation. All the ſpots that will admit of improvement, which 'together bear about the ſame proportion as one to a thouſand, 'are laid out in vineyards, orchards, and kitchen-grounds; and 'moſt of theſe little ſpots lie at a conſiderable diſtance from each 'other *.' From theſe facts, Captain Cook remarks, there is great reaſon to conclude, that, in the interior parts of this country, the cultivated parts do not bear a greater proportion to thoſe which are incorrigibly ſterile. The Dutch have ſettlements at the diſtance of twenty-eight days' journey, (about nine hundred miles), from which proviſions are brought by land to the Cape; 'ſo that,' ſays Captain Cook, 'it ſeems reaſonable to conclude, that proviſions are not to 'be had within a leſs compaſs. While we were at the Cape, a farm-'er came thither from the country, at the diſtance of fifteen days 'journey, and brought his young children with him. We were ſur-'priſed at this, and aſked him, if it would not have been better to 'have left them with his next neighbour? Neighbour! ſaid the 'man, I have no neighbour within leſs than five days journey of me. 'Surely the country muſt be deplorably barren, in which thoſe who 'ſettle only to raiſe proviſions for a market, are diſperſed at ſuch 'diſtances

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 785.

'distances from each other. That the country is every where deſti-
'tute of wood, appears to demonſtration; for timber and planks are
'imported from Batavia, and fuel is almoſt as dear as food *.'

The inhabitants of this place are chiefly Dutch, at leaſt, they are more numerous here than in Batavia. In general, the women are handſome. Their ſkin is fine and clear; and they have a bloom of complexion which is highly expreſſive of vigour and health. They make excellent mothers and miſtreſſes of families; and they are remarkably prolific. Here the air is very ſalubrious; and diſeaſes brought hither from Europe, or other remote regions, are ſpeedily cured. Though both the ſoil and the climate are in ſome meaſure unfavourable to cultivation, and to the breeding of cattle; yet induſtry, which often produces moſt ſurpriſing effects, has ſupplied this place with the greateſt profuſion of the neceſſaries, and even the luxuries of life.

'Of the natives of this country,' Captain COOK remarks, 'we
'could learn but little, except from report; for there were none of
'their habitations, where alone they retain their original cuſtoms,
'within leſs than four days journey from the town. Thoſe that we
'ſaw at the Cape were all ſervants to Dutch farmers, whoſe cattle
'they take care of, and are employed in other drudgery of the mean-
'eſt kind. Theſe are, in general, of a ſlim make, and rather lean
'than plumb, but remarkably ſtrong, nimble, and active. Their ſize
'is nearly the ſame with that of Europeans; and we ſaw ſome that
'were ſix feet high. Their eyes are dull, and without expreſſion.
'Their ſkins are of the colour of ſoot; but that is, in a great mea-
'ſure, cauſed by the dirt, which is ſo wrought into the grain, that it
'cannot

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 786.

'cannot be diſtinguiſhed from complexion; for I believe they never 'waſh any part of their bodies. Their hair curls ſtrongly, not like 'a Negroe's, but falls in ringlets about ſeven or eight inches long. 'Their clothing conſiſts of a ſkin, generally that of a ſheep, thrown 'over their ſhoulders; beſides which, the men wear a ſmall pouch 'in the middle of the waiſt, and the women, a broad leather flap, 'both which hang from a girdle or belt that is adorned with beads 'and ſmall pieces of copper. Both men and women wear necklaces, 'and ſometimes bracelets of beads; and the women wear rings of 'hard leather round their ankles, to defend them from the thorns, 'with which their country every where abounds *.'

The language of the Hottentots, Captain COOK tells us, ſeems to be ſcarcely articulate. While ſpeaking, they have a ſtrange mode, at very frequent intervals, of clucking with their tongues againſt the roof of their mouths. Theſe clucks ſeem to have no other meaning than to divide what they ſay into ſentences. They are naturally a modeſt, and even a ſhy people.

Captain COOK and the other gentlemen made many inquiries of the Dutch concerning the preſent ſtate and manners of the Hottentots; and he was told a number of particulars which he relates entirely on the credit of his informers. From them he learned that there are ſeveral nations of Hottentots within the Dutch ſettlements, who differ greatly in their cuſtoms and manner of living. All of them, however, are repreſented as peaceable and friendly, except one clan ſituated to the eaſtward, whom the Dutch diſtinguiſh by the name of *Boſch-men*, who live entirely by plunder, or rather theft; for they are ſaid never to make open attacks, but to ſteal the cattle privately

In

† Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 789.

in the night. To defend themſelves, however, when detected, they uſe lances and bows, the arrows of which they poiſon, ſome with the juice of herbs, and others with the venom of the ſerpent called *Cobra di Capello.* Stones, in the hands of theſe people, are likewiſe formidable weapons; for they can throw ſtones with ſuch force and dexterity, as repeatedly to hit a dollar at the diſtance of a hundred paces. 'As a defence againſt theſe freebooters,' Captain COOK tells us, 'the other Indians train up bulls, which they place round 'their towns in the night, and which, upon the approach of either 'man or beaſt, will aſſemble and oppoſe them, till they hear the 'voice of their maſters encouraging them to fight, or calling them 'off, which they obey with the ſame docility as a dog *.'

Among the Hottentots, the chiefs, of whom many poſſeſs numerous herds of cattle, are commonly dreſſed in the ſkins of lions, tygers, or zebras, ornamented with fringes, and other trinkets, which indicate no deſpicable taſte. 'Both ſexes,' Captain COOK tells us, 'anoint the body with greaſe, but never uſe any that is rancid or 'foetid, if freſh can be had. Mutton-ſuet and butter are generally 'uſed for this purpoſe.—We were told that the prieſt certainly gives 'the nuptial benediction by ſprinkling the bride and bridegroom 'with his urine. But the Dutch univerſally declared, that the wo-'men never wrapped the entrails of ſheep round their legs, as they 'have been ſaid to do, and afterwards make them part of their 'food †.'

Captain COOK wiſhed to determine a great queſtion among natural hiſtorians, whether the Hottentot women have that fleſhy flap

of

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 790. *et ſeqq.*

† Ibid. p. 791.

or apron diſtinguiſhed by the appellation of the *ſinus pudoris*. The following paſſage contains all that could be diſcovered with regard to that ſubject: 'Many of the Dutch and Malays, who ſaid 'they had received favours from Hottentot women, poſitively de-'nied its exiſtence; but a phyſician of the place declared that he 'had cured many hundreds of venereal complaints, and never ſaw 'one without two fleſhy, or rather ſkinny appendages, proceeding 'from the upper part of the *labia*, in appearance ſomewhat reſem-'bling the teats of a cow, but flat; they hung down, he ſaid, before 'the *pudendum*, and were, in different ſubjects, of different lengths; 'in ſome not more than half an inch, in others three or four inches. 'Theſe he imagined to be what ſome writers have exaggerated into 'a flap or apron, hanging down from the bottom of the abdomen, 'of ſufficient extent to render an artificial covering of the neigh-'bouring parts unneceſſary *.'

In the iſland of Amſterdam, Captain COOK and his aſſociates ſaw ſeveral places of worſhip, which the natives denominated *A-fia-touca*. Theſe houſes were erected on the tops of artificial mounts, about eighteen feet high. They were of an oblong figure, and incloſed by a parapet of ſtone, nearly three feet in height. From this parapet, or wall, the mount, which was covered with green turf, roſe in a gently ſloping direction; and, on the top of it ſtood the houſe or temple, which had the ſame figure as the mount, and was about twenty feet long and fourteen or ſixteen broad. 'As ſoon,' ſays Captain COOK, 'as we came before the place, every one ſeated 'himſelf on the green, about fifty or ſixty yards from the houſe. 'Preſently came three elderly men, who ſeated themſelves between 'us and it, and began a ſpeech, which I underſtood to be a prayer,

'it

* Hawkeſworth's Narrative of Cook's Voyage, vol. 3. p. 792.

'it being wholly directed to the houſe. This laſted about ten minutes; 'and then the prieſts, for ſuch I took them to be, came and ſat 'down along with us, when we made them preſents of ſuch things 'as we had about us *.'

Theſe *Aſiatoucas*, or places of worſhip, are frequent, and diſperſed over the whole iſland. Inſtead of returning to the ſhip, the natives conducted Captain COOK and his retinue into the country by a road, which was about ſixteen feet broad, and perfectly level. This road appeared to be a very common, and even a principal one; for many other roads, in different directions, interſected and terminated in it. The whole of theſe roads were incloſed on each ſide with neat fences made of reeds, and ſhaded from the ſcorching rays of the ſun by fruit-trees. 'I thought I was tranſported,' Captain COOK remarks, 'into the moſt fertile plains in Europe. There was not an inch of 'waſte ground; the roads occupied no more ſpace than was abſo-'lutely neceſſary; the fences did not take up above four inches 'each; and even this was not wholly loſt; for in many were plant-'ed ſome uſeful trees or plants. It was every where the ſame; 'change of place altered not the ſcene. Nature, aſſiſted by a little 'art, no where appears in more ſplendour than at this iſle. In theſe 'delightful walks we met numbers of people; ſome travelling down 'to the ſhips with their burdens of fruit; others returning empty. 'They all gave us the road, by turning either to the right or left, 'and ſitting down or ſtanding, with their backs to the fences, till 'we had paſſed †.'

In theſe iſlands, as well as thoſe of New Zealand, &c. their common method of ſalutation is by making their noſes touch each other.

* Cook's Voyage, 1772, &c. vol. 1. p. 198. † Ibid. p. 201.

Their unſuſpicious mode of behaviour induced Captain COOK and the other gentlemen to think that theſe people were ſeldom diſturbed either by foreign or domeſtic broils; yet their weapons, ſuch as ſwords and ſpears made of hard wood, bows and arrows, were very formidable. Some of their ſpears have many barbs, and muſt be exceedingly dangerous inſtruments of war. Another ſingular cuſtom is worthy of remark. When any preſent is given to them, if acceptable, they apply it to their heads. 'This manner of paying 'a compliment,' ſays Captain COOK, 'is taught them from their 'very infancy; for, when we gave things to little children, the 'mother lifted up the child's hand to its head.—Sometimes they 'would look at our goods, and, if not approved, return them back; 'but, whenever they applied them to the head, the bargain was in-'fallibly ſtruck *.'

In theſe iſlands, a cuſtom of a very peculiar nature prevails. The greater part of the inhabitants, both male and female, were obſerved to have loſt one, or both of their little fingers †. This cuſtom ſeemed not to be characteriſtic of rank, of age, or of ſex; for, if ſome young children be excepted, very few people were diſcovered in whom both hands were perfect ‡. They likewiſe burn or make inciſions in their cheeks; but, whether this ſtrange practice was meant as expreſſive of grief, or of any other violent paſſion, could not be diſcovered.

With regard to *government*, Captain COOK remarks, a perſon, endowed

* Cook's Voyage, 1772, &c. vol. 1. p. 221.

† This ſpecies of mutilation is not confined to the natives of the Friendly iſlands See Recherches Philoſophiques ſur les Americains, tom. 2. p. 253.

‡ Cook's Voyage, Ibid. p. 222.

endowed with the character of *King*, ' was pointed out to us; and ' we had no reaſon to doubt it. From this and other circumſtances, ' I am of opinion, that the government is much like that of Otaheite; that is, in a king or great chief, who is here called *Areeke*, ' with other chiefs under him, who are lords of certain diſtricts, ' and perhaps ſole proprietors, to whom the people ſeem to pay ' great obedience.—I am of opinion, that all the land on *Tongataba* ' (or Amſterdam iſland) is private property, and that there are here, ' as at Otaheite, a ſet of people who are ſervants or ſlaves, and have ' no property in land. It is unreaſonable to ſuppoſe every thing in ' common in a country ſo highly cultivated as this *.—The high ' ſtate of cultivation their lands are in, muſt have coſt them immenſe ' labour. This is now amply rewarded by the great produce, of ' which every one ſeems to partake. No one wants the common ' neceſſaries of life; joy and contentment are painted in every face. ' Indeed, it can hardly be otherwiſe; an eaſy freedom prevails ' among all ranks of people; they feel no wants which they do not ' enjoy the means of gratifying; and they live in a clime where ' the painful extremes of heat and cold are equally unknown †.'

The exiſtence of CANNIBALS, or eaters of human fleſh, has often been mentioned by voyagers, and as often diſcredited by moſt philoſophers. But Captain COOK, and other late navigators, have removed every doubt concerning this, to us at leaſt, moſt ſhocking practice. In New Zealand, ſome of Captain COOK's officers, when viſiting the habitations of the natives, ſaw ſeveral human thigh-bones, from which the fleſh had been but recently picked ‡. A few days after this diſcovery, another party of officers went aſhore in

* Cook's Voyage, 1772, &c. vol. i. p. 223. &c. † Ibid.

‡ Ibid. p. 241.

Queen Charlotte's Bay, 'where they ſaw the head and bowels of a 'youth, who had lately been killed, lying on the beach, and the 'heart ſtuck on a forked ſtick, which was fixed to the head of one 'of the largeſt canoes. One of the gentlemen bought the head, 'and brought it on board, where a piece of the fleſh was broiled 'and eaten by one of the natives, before all the officers, and moſt 'of the men *.' When this ſtrange affair happened, Captain COOK was on ſhore. After returning on board, he was informed of the circumſtances juſt related. He found the quarter-deck crowded with natives, 'and the mangled head, or rather part of it, (for the 'under jaw and lip were wanting), lying on the tafferal. The ſkull 'had been broken on the left ſide, juſt above the temple; and the 'remains of the face had all the appearance of a youth under twenty. 'The ſight of the head, and the relation of the above circumſtances, 'ſtruck me with horror, and filled my mind with indignation againſt 'theſe cannibals. Curioſity, however, got the better of my indig-'nation, eſpecially when I conſidered that it would avail but little; 'and being deſirous of becoming an eye-witneſs of a fact which 'many doubted, I ordered a piece of the fleſh to be broiled and 'brought to the quarter-deck, where one of theſe cannibals eat it 'with ſurpriſing avidity. This had ſuch an effect upon ſome of 'our people as to make them ſick †.'

Captain COOK, however, after expreſſing a juſt abhorrence againſt this deteſtable, and, to us, moſt unnatural practice, candidly acknowledges, that theſe people eat only thoſe whom they ſlay in battle. TUPIA, who frequently expoſtulated with them againſt this worſe than brutal cuſtom, received for reply, 'Can there be any harm in 'eating

* Cook's Voyage, 1772, &c. vol. 1. p. 243.

† Ibid. and p. 244. 245.

'eating our enemies, whom we have killed in battle? Would not 'thoſe very enemies have done the ſame to us *?'

The New Zealanders, by their general deportment, and active vigilance, ſeem to live under perpetual apprehenſions of being deſtroyed by each other. Moſt of their tribes have either actually, or imagine they have ſuſtained wrongs from ſome other tribe, and, of courſe, are always watching for opportunities of revenge. 'And, 'perhaps,' Captain COOK remarks, 'the deſire of a good meal may 'be no ſmall incitement.—Their method of executing their horrible 'deſigns, is by ſtealing upon the adverſe party in the night; and, 'if they find them unguarded, (which, however, I believe is ſeldom 'the caſe), they kill every one indiſcriminately, not even ſparing 'the women and children. When the maſſacre is completed, they 'either *feaſt* and *gorge* themſelves upon the ſpot, or carry off as 'many of the dead bodies as they can, and *devour* them at home, 'with acts of brutality too ſhocking to be deſcribed †.' To give quarter, or to take priſoners, conſtitute no part of military law in New Zealand. Theſe perpetual hoſtilities, and the ſhocking manner of conducting them, produce in the inhabitants an habitual circumſpection and dread. 'Indeed,' ſays Captain COOK, 'no other 'men can have ſuch powerful motives to be vigilant, as the preſer-'vation both of body and *ſoul* depends upon it. For, according to 'their ſyſtem of belief, the *ſoul* of the man whoſe fleſh is devoured 'by the enemy, is doomed to *a perpetual fire*; while the ſoul of the 'man whoſe body has been reſcued from thoſe who killed him, as 'well as the ſouls of all who die a natural death, aſcend to the habi-'tations of the gods. I aſked, Whether they eat the fleſh of ſuch of

* Cook's Voyage, 1772, &c. vol. I. p. 246.

† Cook's Voyage, 1776, &c. vol. I. p. 137.

of their friends as had been killed in war, but whoſe bodies were ſaved from falling into the enemy's hands? They ſeemed ſurpriſed at the queſtion, which they anſwered in the negative, expreſſing ſome abhorrence at the very idea. Their common method of diſpoſing of their dead, is by depoſiting their bodies in the earth; but, if they have more of their ſlaughtered enemies than they can *eat*, they throw them into the ſea *.

THESE reſpectable, and ſome of them recent authorities, are fully ſufficient to ſhow that cannibals in ſome parts of the New World exiſt even in our own times. From authorities no leſs reſpectable, I ſhall proceed to ſhow, that the practice of *eating human fleſh* was formerly not uncommon in various regions of the Old Continent. The ancient Greeks of Peloponneſus, now known by the appellation of *Morea*, went, like the beaſts of the foreſt, perfectly naked, and eat *human fleſh* with avidity, at which, PALMERIUS remarks, the modern practice of the American nations forbids us to wonder. But certain ſacred nymphs, who officiated in the temples, reprobated the practice of eating human fleſh, and likewiſe taught the inhabitants of that diſtrict of Greece, for the ſake of modeſty, to cover themſelves with the inner bark of trees, or with the ſkins of beaſts †. The Jews, ſo late as the days of Trajan, having overcome a conſiderable army compoſed of Greeks and Romans, near Cyrene, *eat* thoſe who fell in battle, devoured their entrails, anointed themſelves with their blood,

* Cook's Voyage, &c. vol. 1. p. 138.—See other inſtances of a ſimilar nature in Forſter's Voyage, vol. 1. p. 512. vol. 2. p. 77. 300. 315.

† Palmer. Graec. Antiq deſcript. p. 55. 56.

blood, and made clothes of their ſkins *. The Padaei, a nation of India, ſays HERODOTUS, live upon raw fleſh. When either males or females approached toward old age, they were *ſlain* and *devoured* by their neareſt relations or neighbours. They were never allowed to be emaciated by diſeaſe, leſt their *fleſh* ſhould become corrupted, and, of courſe, unpalatable. They were ſeldom, however, permitted to reach this ſtage of diſeaſe; for they were ſlaughtered and *eaten* long before that period arrived †.

The Myſi, a people of Aſia, in the neighboured of Troas, killed and *eat* ſuch priſoners as they took in war ‡. Why, ſays HIERONYMUS, do I ſpeak of other nations, when I ſaw, while I was in Gaul, the *Scots*, who inhabit a conſiderable part of the iſland of Britain, *eat human fleſh*; and, when they found in the woods ſhepherds and keepers of hogs, they cut off the *hips* of the men and the *breaſts* of the women, which they eſteemed as the moſt delicious repaſt ‖. In deſcribing the Scythians, HERODOTUS informs us, that to the north of a certain deſert, a nation exiſted in his time called *Androphagi*, becauſe they feaſted on *human fleſh* §. HERODOTUS, in the ſame book, makes frequent mention of theſe Androphagi. ANTONY, with a view to overturn the Roman government, took a ſolemn oath from his aſſociates, which was attended with a moſt infamous ſolemnity. After ſacrificing a *boy*, the oath was adminiſtered over his entrails, which afterwards were *eaten* by theſe conſpirators **.

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* Dio Caſſ. Rom. Hiſt. edit. Xiphilin. p. 556.

† Herodot. Thalia, ſ. lib. 3. edit. Gronov. p. 199.

‡ Flor. lib 4. c. 12.; and Schedius de Diis Germanis, p. 403.

‖ Hieron. adver. Jovian. lib. 2.

§ Herodot. Melpomene, ſ. lib. 4. § 18.

** Dio Caſſ. edit. Xiphilini, 27.

In New Zealand, there are no *Morais*, or other places of public worſhip. But they have prieſts, who alone addreſs the gods in propitiatory prayers for the ſucceſs of enterpriſes againſt enemies, of fiſhing parties, and of other temporal affairs. Notwithſtanding the hoſtile ſtate and almoſt perpetual wars carried on among the different tribes into which theſe people are divided, travelling ſtrangers, who have no evil intentions, are well received and entertained during their ſtay, which, however, it is expected, will be no longer than is neceſſary to execute the buſineſs they came to tranſact. Here polygamy is permitted; and it is not unuſual for one man to have two or three wives. The New Zealanders ſeem to be perfectly ſatisfied with the ſmall portion of knowledge they poſſeſs, without attempting to increaſe it. In them, new and even ſurpriſing objects excite little or no ſurpriſe; and it is difficult, even for a moment, to fix their attention. This ſpecies of apathy, though contrary to our ideas, and almoſt our comprehenſion, is common to moſt of the natives of the South Sea iſlands. Curioſity, or rather the love of examining new objects, and of acquiring knowledge, we have always been led to conſider, and to feel, as one of the ſtrongeſt propenſities in human nature. But in moſt of the South Sea iſlands, and among moſt ſavage people, the natives ſeem to want this propenſity; if otherwiſe, it has little or no influence upon their minds.

Dramatic Entertainments, or the recital of comic or tragic ideas in the form of dialogue, together with real or alluſive repreſentations, are, in the Old World, as ancient as the records of hiſtory.

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In many of the detached iſlands ſcattered over the great Pacific Ocean, public amuſements of this kind are not unfrequent.

When Captain COOK and the other gentlemen were at Otaheite, in April 1773, they were conducted to the theatre,

'we were entertained with a dramatic *heiva*, or *play*, in 'both dancing and comedy. The performers were five men, and 'one woman, who was no leſs a perſon than the King's ſiſter. The 'muſic conſiſted of three drums only; it laſted about an hour and 'an half, or two hours; and, upon the whole, was well conducted. 'It was not poſſible for us to find out the meaning of the play. 'Some part ſeemed adapted to the preſent time, as my name was 'frequently mentioned. Other parts were certainly unconnected 'with us. It apparently differed in nothing, that is, in the manner 'of acting it, from thoſe we ſaw at Ulietia, in my former voyage. 'The dancing-dreſs of the lady was more elegant than any I ſaw 'there, by being decorated with long taſſels, made of feathers, hang-'ing from the waiſt downward. As ſoon as all was over, the King himſelf (OTOO) deſired me to depart; and ſent into the boat different kinds of fruit and fiſh, ready dreſſed *.'

In September, ſame year, Captains COOK and FURNEAUX paid a viſit to ORÉO, a conſiderable chief in Ulietia, who entertained them with a comedy or dramatic *heiva*. 'The muſic,' Captain Cook informs us, 'conſiſted of three drums; the actors were ſeven men, 'and one woman, the Chief's daughter. The only entertaining part 'of the drama, was a theft committed by a man and his accomplice, 'in ſuch a maſterly manner, as ſufficiently diſplayed the genius of 'theſe people in this vice. The theft is diſcovered before the thief

* Cook's Voyage, 1772, &c. vol. I. p. 156.

'has time to carry off his prize; then a ſcuffle enſues with thoſe ſet to 'guard it, who, though four to two, are beat off the ſtage, and the 'thief and his accomplice bear away their plunder in triumph *.'

Beſide a ſpecies of regular drama, the iſlanders of the Pacific Ocean exhibit, as public amuſements, *wreſtling* and *boxing* matches, which they perform with great ſpirit and dexterity †.

Miscellaneous Manners and Customs obſerved by the South Sea Iſlanders.

Among theſe people, when they wiſh to expreſs friendſhip, or at leaſt the abſence of hoſtile intentions, it is a univerſal cuſtom to pre-

of trees ‡.

In the iſlands of Amſterdam, Middleburg, &c. which have been diſtinguiſhed by the appellation of the *Friendly iſlands*, a very odd cuſtom prevails. It was remarked by our voyagers, that the greater part of the inhabitants, males as well as females, had loſt one or both of their *little fingers*. 'We endeavoured,' ſays Captain Cook, 'but in vain, to find out the reaſon of this mutilation; for no one 'would take any pains to inform us. It was neither peculiar to 'rank, age, or ſex; nor is it done at any certain age, as I ſaw 'thoſe of all ages on whom the amputation had been juſt made; 'and, except ſome young children, we found few who had both 'hands

* Cook's Voyage, 1772, &c. vol. 1. p. 173. For ſeveral other, but ſimilar dramatic repreſentations and dances, ſee Ibid. p. 295. 307. &c.

† Ibid. p. 349. &c. ‡ Ibid. p. 81.

'hands perfect *.' In Captain COOK's ſecond voyage to theſe iſlands, he diſcovered that this operation is performed when the natives labour under any grievous diſeaſe, and think themſelves in danger of dying; for they imagine that the Deity will accept of the little finger, as a ſacrifice ſufficiently efficacious to procure the recovery of their health †. The ſame cuſtom of cutting off the little fingers, is related by Mr G. FORSTER, who ſailed along with Captain COOK. Mr FORSTER thought he diſcovered, that theſe ſtrange mutilations were intended as marks, or remembrancers, of the death of near relations ‡.

Captain COOK informs us, that the natives of the *Marqueſas iſlands* are unexceptionably the moſt handſome race of people to be met with in the South Sea. 'For fine ſhape, and regular features, 'they perhaps ſurpaſs all other nations: Nevertheleſs, the affinity 'of their language to that ſpoken in Otaheite and the Society iſles, 'ſhews that they are of the ſame nation. OEDIDEE could converſe 'with them tolerably well, though we could not; but it was eaſy 'to ſee that their language was nearly the ſame. The men are 'punctured, or curiouſly *tattowed*, from head to foot. The figures 'are various, and ſeem to be directed more by fancy than cuſtom. 'Theſe punctuations make them look dark; but the women, who 'are but little punctured, youths, and young children, who are not 'at all, are as fair as ſome Europeans ‖.'

* Cook's Voyage, 1772, vol. 1. p. 222. The ſame cuſtom prevails in ſome parts of America. See Recherches Philoſophiques ſur les Americains, tom. 2. p. 253.

† Cook's Voyage, 1776, &c. vol. 1. p. 403.

‡ Forſter's Voyage round the World, vol. 1. p. 435. 471.

‖ Cook's Voyage, 1772, &c. vol. 1. p. 308.

In moſt of the South Sea iſlands, it is a general cuſtom, not to ſuffer the women, of whatever rank, to eat in company with the men *.

With regard to the natives of *New Zealand*, their colour varies from a pretty deep black to an olive or yellowiſh tinge. Their faces, in general, are round, with full, though not uncommonly thick lips. Neither are their noſes flat. Their teeth are broad, white, and well ſet; and their eyes are large, and move with great freedom. Their hair is black, ſtraight, and ſtrong. Among the young people, the countenance is generally open and free; but, in moſt of the men, it has a ſerious, and ſometimes a ſullen air. The women are not diſtinguiſhed from the men by many peculiar graces either in form or features. In both ſexes, the dreſs is the ſame, and conſiſts of an oblong garment, about five feet long and four in breadth, made of a ſilky flaxen ſubſtance, which they obtain from a certain ſedgy plant. 'Over this garment,' Captain Cook informs us, 'many of them 'wear mats, which reach from the ſhoulders to near the heels. But 'the moſt common outer-covering is a quantity of the above ſedgy 'plant, badly dreſſed, which they faſten on a ſtring to a conſider-'able length, and, throwing it about the ſhoulders, let it fall down 'on all ſides, as far as the middle of the thighs. When they ſit 'down with this upon them, either in their boats or upon the ſhore, 'it would be difficult to diſtinguiſh them from large gray ſtones, if 'their black heads, projecting beyond their coverings, did not en-'gage one to a ſtricter examination †.'

In their heads they fix feathers, or combs made of bone or wood, by

* Cook's Voyage, 1772, &c. vol. 1. p. 351. *et*

† Cook's Voyage, 1776, &c. vol. 1. p. 154.

by way of ornaments. Theſe they adorn with pearl ſhell, or the thin inner ſkins of leaves. Both males and females wear ear-rings compoſed of jaſper, bits of cloth, or beads, when theſe laſt can be procured; and ſome of them have the *ſeptum* of the noſe pierced for the inſertion of ſimilar trinkets. The cuſtom of *tattowing*, or puncturing the face with ſpiral lines and other figures, ſtained with a black or deep blue colour, is likewiſe common. Both ſexes frequently beſmear their heads and faces with a reddiſh ochre, mixed with greaſe; and the women occaſionally wore necklaces of ſharks teeth, or bunches of a kind of long beads, which ſeemed to be made of the leg-bones of ſmall birds.

The New Zealanders generally live in caves, in companies of about forty or fifty. They build their huts, which are poor and miſerable dwellings, contiguous to each other. They ſeemed to have no other furniture in theſe hovels than ſome ſmall baſkets or bags, in which they kept their fiſhing-hooks, and other trifles. They ſubſiſt chiefly by fiſhing. For this purpoſe they employ either nets of various kinds, or hooks made of wood, and pointed with bone. Their boats, or canoes, are well built with planks raiſed upon each other, and ſtrongly faſtened with withes. Some of them are fifty feet in length, and ſo broad that they can ſail without the aid of an outrigger. They have no other mode of dreſſing their fiſh than by roaſting, or rather a kind of baking; for they ſeem to know nothing of the art of boiling. When the ſea is too tempeſtuous, they content themſelves, inſtead of larger fiſhes, with muſcles, ſea-ears, and other ſhell-animals which they can procure, in great quantities, upon the rocks and ſea-beach. They indeed breed conſiderable numbers of dogs for eating; but theſe cannot be conſidered as a principal article of their food; for, as there appears not the leaſt mark of cultivation.

tivation on their ground, they depend chiefly on the ſea for their ſubſiſtence. 'Their method of feeding,' Captain COOK tells us, 'correſponds with the naſtineſs of their perſons, which often ſmell 'diſagreeably from the quantity of greaſe about them, and their 'clothes never being waſhed. We have ſeen them *eat the vermin*, 'with which their heads are ſufficiently ſtocked. They alſo uſed 'to devour, with the greateſt eagerneſs, large quantities of ſtinking 'train oil, and blubber of ſeals, which we were melting at the tent, 'and had kept near two months; and, on board the ſhips, they 'were not ſatisfied with emptying the lamps, but actually ſwallowed 'the cotton, and fragrant wick, with equal voracity *.'—'They 'ſhew, however,' continues our author, 'as much ingenuity, both 'in invention and execution, as any uncivilized nations under ſimi-'lar circumſtances. For, without the uſe of any metal tools, they 'make every thing by which they procure their ſubſiſtence, clothing, 'and warlike weapons, with a degree of neatneſs, ſtrength, and con-'venience for accompliſhing their ſeveral purpoſes †.'—'Their public 'contentions are frequent, or rather perpetual; for it appears, from 'their number of weapons, and dexterity in uſing them, that war is 'their principal profeſſion ‡.'

When about to attack the enemy, they begin a war-ſong, and raiſe their paſſion to a degree of fury, which is accompanied with a horrible diſtortion of their eyes, mouths, and tongues. All theſe aſſumed dreadful appearances are employed with a view to terrify their enemies; 'which,' ſays Captain COOK, 'to thoſe who have 'not been accuſtomed to ſuch a practice, makes them appear more 'like demons than men, and would almoſt chill the boldeſt with 'fear.

* Cook's Voyage, 1776, &c. vol. 1. p. 158. † Ibid. p. 159.

‡ Ibid. p. 161.

'fear. To this ſucceeds a circumſtance, almoſt foretold in their 'fierce demeanour, horrid, cruel, and diſgraceful to human nature; 'which is, cutting in pieces, even before being perfectly dead, the 'bodies of their enemies, and, after dreſſing them on a fire, *devour-* 'ing the fleſh, not only without reluctance, but with peculiar ſatis- 'faction *.'

From this ſhocking picture, we ſhould naturally be led to think that a people of this deſcription muſt be deſtitute of every feeling belonging to humanity; yet, Captain COOK informs us, they lament the loſs of relations and friends with a violence of expreſſion which indicates the moſt tender affection, and the keeneſt regret: 'For,' ſays he, 'both men and women, upon the death of thoſe connected 'with them, whether in battle or otherwiſe, bewail them with the 'moſt doleful cries; at the ſame time cutting their foreheads and 'cheeks with ſhells or pieces of flint, in large gaſhes, until the blood 'flows plentifully, and mixes with their tears.' What is ſtill more characteriſtic of the warm, or rather violent, affections of theſe iſlanders, upon the return of friends who have been for ſome time abſent, they expreſs *joy* by the ſame cuttings as they expreſs *grief* †.

At *Tongataboo*, another of the iſlands in the South Sea, Captain COOK and his aſſociates ſupped with FUTTAFAIHE, one of their Chiefs. 'When ſupper was over,' ſays the Captain, 'abundance 'of cloth was brought for us to ſleep in; but we were a good deal 'diſturbed by a ſingular inſtance of luxury, in which their principal 'men indulge themſelves; that of being beat while they are aſleep. 'Two women ſat by FUTTAFAIHE, and performed this operation, 'which is called *tooge tooge*, by beating briſkly on his body and 'legs, with both fiſts, as on a drum, till he fell aſleep, and continuing 'it

* Cook's Voyage, 1776, &c. vol. 1. p. 161 162. † Ibid. p. 162.

'it the whole night, with ſome ſhort intervals. When once the per-
'ſon is aſleep, they abate a little in the ſtrength and quickneſs of the
'beating; but reſume it, if they obſerve any appearance of his
waking *.'

Among ſavage nations, in general, the men are remarkably harſh and inattentive to the women. They are obliged to perform the dirtieſt and moſt laborious offices. This is, in a peculiar manner, the condition of the fair ſex in the iſland of Tanna. The women carry all the burdens, and the men proceed unconcernedly without any incumbrance, except their arms. 'It appeared to me,' ſays Captain Cook, 'that the women were not held in any eſteem by the
'men, but obeyed upon the ſmalleſt ſign; and many were ſeen in
'the humiliating guiſe of drudges and beaſts of burden †.'

It is not unworthy of remark, that chaſtity, and modeſty, or a deſire of concealing certain actions, which have long been ſuppoſed to be inherent qualities of the human mind, ſeem, from the experience of the voyagers whoſe writings I have ſo often quoted above, to be local ideas only, and totally unknown in a ſtate of uncultivated nature ‡.

Human ſacrifices.—In the iſland of Otaheite, where the general manners of the inhabitants are gentle, obliging, affectionate, and friendly to ſtrangers, it is aſtoniſhing that *human ſacrifices*, on the approach of war with any of the neighbouring iſlands, or other intereſting occaſions, ſhould be a univerſal practice. When ſuch ſacrifices are ordered by their Kings or Chiefs, or Prieſts, the unhappy victims have

* See Cook's Voyage, 1776, &c. vol. 1. p. 323. 344. † Ibid. p. 324.

‡ See Forſter's Voyage, vol. 2. p. 230. *et alibi paſſim*, and Geneſis, chap. 2. verſe 25. 'And they were both *naked*, the man and his wife, and were not *aſhamed*.

have luckily no intimation of their intended fate. They are pitched upon by the Chiefs, and perſons are appointed to murder them privately. Like many other oppreſſive and unjuſt practices in feudal governments, the victims ſingled out for ſacrifice are always ſelected from the loweſt of the people. This inſtitution ſeems at leaſt to be founded in wiſdom. If they attempted to ſacrifice men in the higher ranks of the ſtate, internal broils and commotions would be unavoidable. After a number of ſuperſtitious rites, and many prayers performed both by the chief and ſubordinate prieſts, the corpſe is at laſt laid upon the moſt conſpicuous part of the *Morai*, or place of worſhip. The prayers and ceremonies were again renewed; and, when theſe were finiſhed, the body was buried in the ground.

Beſide human ſacrifices, a practice which is not peculiar to Otaheite, but extends over a great number, perhaps the whole, of the iſlands in the great Southern Ocean, they ſacrifice dogs, hogs, &c. and make offerings of various articles, particularly thoſe of proviſions, to their *Eatooa* or God.

Another circumſtance, recorded by Captain COOK, of the frequency of human ſacrifices in theſe iſlands, muſt not be omitted. 'When 'I deſcribed,' ſays our great and intelligent voyager, 'the *Natihe* at '*Tongabatoo* (another iſland) I mentioned, that, on the approaching 'ſequel of that feſtival, we had been told, that ten men were to be 'ſacrificed. This may give us an idea of the extent of this religi-'ous maſſacre on that iſland. And, though we ſhould ſuppoſe, that 'never more than one perſon is ſacrificed on any ſingle occaſion at 'Otaheite, it is more than probable, that theſe occaſions happen ſo 'frequently, as to make a ſhocking waſte of the human race; for I 'counted no leſs than forty-nine ſkulls of former victims, lying be-

'fore the *Morai*, where we ſaw one more added to the number. 'And, as none of theſe ſkulls had, as yet, ſuffered any conſiderable 'change from the weather, it may hence be inferred, that no great 'length of time had elapſed, ſince, at leaſt, this conſiderable number 'of unhappy wretches had been offered on this altar of blood *.'

The human ſacrifice deſcribed above, happened on the 2d day of September 1777; and a ſecond was performed on the 12th of the ſame month. 'This ſecond inſtance,' Captain COOK remarks, 'within the courſe of a few days, was too melancholy a proof, how 'numerous the victims of this bloody ſuperſtition are amongſt this 'humane people †.'

Human ſacrifices, Captain COOK informs us, are more frequent in the Sandwich than in any of the other iſlands. 'Theſe horrid 'rites,' ſays he, 'are not only had recourſe to upon the commence-'ment of war, and preceding great battles, and other ſignal enter-'priſes; but the death of any conſiderable Chief calls for a ſacrifice 'of one or more *Towtows*, that is, vulgar or low perſons, according 'to his rank; and we were told, that *ten* men were deſtined to ſuf-'fer on the death of TERREEOBOO ‡,' (a great Chief).

Many other inſtances of this deteſtable practice are mentioned by Captain COOK and other voyagers on the Southern Ocean. That it was, in ancient times, very univerſal among the nations of Europe, we learn from hiſtorians of undoubted authority. From the writings of MOSES, which are perhaps of greater antiquity than any compoſition

* See Cook's Voyage, 1776, &c. vol. 2. p. 42.

† Ibid. p. 53.; and vol. 3. p. 132, &c.

‡ Ibid. p. 161. Ibid. vol. 1. p. 351. 495.

poſition which has been tranſmitted to us, it appears that human ſacrifices, in all their horrors, were, at that early period, not unfrequent. The ſtory of ABRAHAM about to ſacrifice his only ſon ISAAC, even ſuppoſing it to be allegorical, evinces that the practice was familiar to the people of that country. One paſſage, in this ſtory, is ſo curious, that I cannot refrain from tranſcribing it. 'And they came to the place 'which GOD had told him of, and ABRAHAM built an altar there, 'and laid the wood in order; and bound ISAAC his ſon, and laid 'him on the altar upon the wood. And ABRAHAM ſtretched forth 'his hand, and took the knife to ſlay his ſon. And the angel of the 'LORD called unto him out of heaven, and ſaid, ABRAHAM, 'ABRAHAM; and he ſaid, Here am I. And he ſaid, Lay not thine 'hand upon the lad, neither do thou any thing unto him; for now 'I know that thou feareſt GOD, ſeeing thou haſt not with-held thy 'ſon, thine only ſon, from me *.'

From this paſſage, it is not unworthy of remark, that, in the days of ABRAHAM, when a human ſacrifice was to be offered up, the unhappy victim was ſlain before he was committed to the flames; and that the ſame mode is ſtill obſerved in the iſlands of the Pacific Ocean; with this difference, that, in theſe iſlands, the victims are both ſelected and murdered privately, which renders it impoſſible for them to have any idea of their deſtination; but, from the hiſtory of ABRAHAM and his ſon ISAAC, it appears, that, in the eaſtern countries, the devoted perſons muſt have known their dreadful fate long before the fatal blow was given. The preparatory ſteps were ſhocking to human nature. An altar erected; faggots of wood laid upon the altar; the miſerable wretch bound, and laid upon the wood;

* Geneſis, chap. 22. verſe 9, &c.

and the inſtrument by which he was to be butchered preſented to his eyes!

In the Old Teſtament, there are many alluſions to the practice of ſacrificing human beings. In the 18th chapter of Leviticus, verſe 21. we have the following paſſage: 'Thou ſhalt not let any of thy 'ſeed paſs through the fire to Molech *.' Some commentators think, that, by *paſſing through the fire to Molech*, ſignifies a luſtration only, and not an actual ſacrifice. But this idea is completely removed by the Pſalmiſt DAVID †. 'Yea, they ſacrificed their ſons and their 'daughters unto devils, and ſhed innocent blood, even the blood of 'their ſons and their daughters, whom they ſacrificed unto the idols 'of Canaan.' In the prophet HOSEA, we have an unequivocal inſtance of *human ſacrifices* being ſometimes practiſed by the Jews. 'And 'now they ſin more and more, and have made them molten images 'of their ſilver, and idols according to their own underſtanding: 'They were all the work of the craftſmen: They ſay one to another 'whilſt they *ſacrifice a man*, let them kiſs the calves ‡.' The following paſſage in the propheſies of Jeremiah ſhows that this deteſtable practice was not uncommon in the Jewiſh nation: 'And they have 'built the high places of Tophet, which is in the valley of Ben-'hinnom, to burn their ſons and their daughters in the fire ||.' The ſame prophet, in another chapter, tells us, that 'they have filled 'this place alſo with the blood of innocents, and they have built the 'high places of BAAL, to burn their ſons with fire for burnt offerings 'unto BAAL. Therefore this place ſhall no more be called Tophet, 'nor

* The ſame prohibition is repeated in Deuteronomy, chap. 18. v. 10.; 2d Kings, chap. 16. v. 3.; Ibid. chap. 17. v. 17.; Ibid. chap. 23. v. 10.

† Pſalms, chap. 16. v. 37. 38. ‡ Hoſea, chap. 13. v. 2.

|| Jeremiah, chap. 7. v. 31.

'nor the valley of Benhinnom, but the valley of *ſlaughter* *.' A ſimilar paſſage occurs in the writings of the prophet EZEKIEL: 'Moreover, thou haſt taken thy ſons and thy daughters, whom thou haſt born unto me, and theſe haſt thou ſacrificed unto *them* (i. e. idols) to be devoured †.' SELDEN likewiſe informs us, that, in Syria, men, women, and children were ſacrificed to the idol *Molech*; and, to prevent the relations of the miſerable victims from hearing their cries while burning in the flames, drums and other loud ſounding inſtruments were employed till their lives were completely extinguiſhed ‡. The ſame practices were continued among the Carthaginians even in the days of TIBERIUS CÆSAR ‖. When the Carthaginians were overcome in battle by AGATHOCLES, King of Sicily, they imagined that the gods were angry with them; and, to appeaſe theſe gods, two hundred ſons of the nobles were ordered to be ſacrificed. What exhibits a ſtill ſtronger picture of the barbarous manners and ſuperſtition of theſe people, ſuch noblemen as happened to have no ſons of their own, *purchaſed* boys, for this inhuman purpoſe, from poor people §.

PLUTARCH informs us, that, in the days of THEMISTOCLES, three young captives were, by his order or conſent, ſacrificed to BACCHUS **. It was a practice among the Scythians, ſays HERODOTUS, to ſacrifice to MARS one out of every hundred priſoners taken in war ††. It does not appear that they eat the fleſh of their enemies, but contented themſelves with drinking their blood ‡‡. It is not

* Jeremiah, chap. 19. v. 4. 5. 6.

† Ezekiel, chap. 16. v. 20. Ibid. chap. 23. v. 37. & 39.

‡ Selden de Diis Syris, p. 170. 172. 173.; and Schedius de Diis Germanis, p. 401.

‖ Selden de Diis Syris, p. 182. § Ibid. p. 181.; and De Divin. Inſtit. cap. 21.

** Plutarch, edit. Bryan. tom. 1. p. 262.

†† Herodot. Melpomene, edit. Xyphilin. p. 241. ‡‡ Ibid. § 64.

not here unworthy of remark, that the Scythians, like the North Americans, ſcalped the heads of thoſe whom they ſlew in battle, and exhibited theſe ſcalps as trophies of valour and proweſs *. The Scythians, in making ſolemn treaties, or private covenants, likewiſe drew blood from the veins of the contracting parties, which they mixed with wine, and mutually drank †.

JULIUS CÆSAR ſacrificed two young men to the gods in the Campus Martius; which cruel and infamous action was ſolemnly performed by the Roman prieſts ‡. The ancient Greeks were accuſtomed to flatter or appeaſe their god SATURN by human ſacrifices. The ſame horrid practice was uſual among the Carthaginians, while their ſtate ſubſiſted; and DIONYSIUS tells us, that, in his time, the cuſtom prevailed ſtill among the Gauls and other nations in the weſt of Europe. But HERCULES is ſaid to have aboliſhed this inhuman rite, by ſubſtituting the figures and dreſs, inſtead of the perſons, of the intended victims; and perſuaded the people, that the offended gods would be equally pleaſed with the ſhadow as with the ſubſtance ‖. This mode of ſacrificing figures, inſtead of men, with a few exceptions, was long continued among the Romans §. PLINY relates **, that, in the year of Rome 657, when CN. CORNELIUS LEPIDUS and P. LICINIUS CRASSUS were conſuls, a decree of the Senate paſſed, forbidding all human ſacrifices for the future; a clear indication that this deteſtable rite was formerly not unfrequent in that great empire.

The

* Herodot. Melpomene, edit. Xyphilin, p. 241. † Ibid. p. 243. § 70.
‡ Dio Caſſius, lib. 43. p. 140. edit. Xyphilin.
‖ Dionyſ. Halicarnaſſ. edit. Sylburg. p. 30. § Id. ibid.
** Plin. lib. 30. c. 1.

The Druids, we are told by STRABO, inſtead of taking victims from the brute creation, ſacrificed individuals of the human ſpecies. When a man was pitched upon for the purpoſes of divination, they ſtabbed him with a poinard; and, from the various contortions and convulſive motions produced by extreme agony, the monſters called *prieſts*, pretended to predict future events *. He likewiſe informs us, that the Cimbri, after diſſecting the bellies of their captives, from the appearance of the inteſtines, foretold victory or defeat †. TACITUS, in his Annals, ſays, that the Druids, on altars erected in groves, ſacrificed Tribunes and Centurians of the firſt rank ‡. He adds, that they conſulted the gods by the diſpoſition of the fleſhy fibres of human victims ‖. JULIUS CÆSAR, when deſcribing the manners of the Gauls, remarks, that they were extremely religious; that, when afflicted with grievous diſeaſes, or other calamities, they either ſacrificed human victims, or ſpontaneouſly devoted themſelves to that terrible mode of extinguiſhing life. The Druids, or prieſts, ſuperintended theſe ſacrifices, which were performed with a view to expiate their crimes, and to appeaſe the wrath of their gods. In their more public ſacrifices of this kind, they employed immenſe images of men, compoſed of the branches of trees. Theſe images were hollow within; and the legs, thighs, trunk, and arms, were filled with men, women, and children, who were all burnt with faggots from below. This was the puniſhment of thoſe who had been guilty of theft, or other crimes. But, when a ſufficient number of criminals could not be obtained, recourſe was had to thoſe who were perfectly innocent §.

In

* Strab. lib. 4. † Id. lib. 7. de Cimbris.

‡ Tacit. Annal. lib. 1.

§ Ibid. lib. 14. and de Moribus German.—See alſo Lucan. Pharſal. lib. 3

‖ Jul. Caeſ. Opera, edit. Samuel Clarke, S. T. fr. lib. 6. p. 131.

In Mexico, when that empire was diſcovered by the Spaniards, they had a complete ſyſtem of religious opinions and practices, accompanied with all the uſual train of prieſts, temples, victims, and feſtivals. But, of all offerings to their gods, human ſacrifices they conſidered as the moſt acceptable. The captives taken in war were brought to the temple, devoted as victims to their divinities, and ſacrificed with rites the moſt ſolemn and excruciating. The heart and head were conſecrated to the gods; and the reſpective warriors who ſeized the priſoners carried off the bodies to *feaſt* upon them with their friends *. The ſame author, in another place, tells us, that the Spaniards landed on a ſmall iſland, which they called the *Iſle of Sacrifices*; becauſe there, for the firſt time, they beheld the horrid ſpectacle of human victims †. Even among the Peruvians, who, of all the people found in America when firſt diſcovered, were the mildeſt and moſt humane in their general temper and manners, on certain emergencies, offered human ſacrifices to their god. On the death of an Inca, or other perſon of rank, many of their attendants were killed, that they might appear in the other world with their uſual retinue, and be ſerved with the ſame reſpect as they had been in this. On the death of HUANA-CAPAC, the moſt powerful of their Monarchs, more than a thouſand human victims accompanied him to the tomb ‡. The ſame practice was obſerved by the natives of Florida, where the lives of the ſubject were at the abſolute diſpoſal of the Sovereign. When any of his ſubjects incurred his diſpleaſure, they approached him with the moſt abject humility, and offered him their heads. Neither did this abſolute dominion terminate with the death of the Sovereign. When that event happened, his favourite wives and domeſtics were ſacrificed at his tomb, that he might

* Robertſon's Hiſtory of America, and the authorities quoted by him, vol. 2. p. 302. &c. † Ibid. vol. 1. p. 242. ‡ Ibid. vol. 2. p. 325.

might appear with his uſual pomp in the next world; and, ſuch was the abſurd reverence in which he was held, that thoſe victims met death with exultation, eſteeming it as a mark of diſtinction, and a reward for their fidelity *.

I muſt here quote a few lines from Dr ROBERTSON's Hiſtory of America, as it ſtrongly marks the character and manners of the Tlaſcalans, who ſtrenuouſly oppoſed the Spaniards in their progreſs to Mexico. 'They gave the Spaniards warning,' ſays that elegant hiſtorian, 'of their hoſtile intentions; and, as they knew that they 'wanted proviſions, and imagined, perhaps, like the other Ameri-'cans, that they had left their own country becauſe it did not afford 'them ſubſiſtence, they ſent to their camp a large ſupply of poultry 'and maize, deſiring them to eat plentifully, becauſe they *ſcorned* 'to attack an enemy *enfeebled* by hunger, and it would be an *affront* 'to their *gods* to offer them *famiſhed* victims, as well as diſagree-'able to themſelves to *feed* on ſuch *emaciated prey* †.' The Americans conſidered the Spaniards as ſuperior beings. CORTES, their then leader, with a moſt impolitic cruelty, and a moſt diabolical ingratitude, ſeized fifty Tlaſcalans, who brought proviſions to his camp, and, on the ſuppoſition that they were ſpies, cut off their hands. This horrible ſpectacle, joined to the terror excited by fire-arms and horſes, gave dreadful impreſſions of their ferocity, as appears from their mode of addreſſing the Spaniards. 'If,' ſaid they, 'you are *divinities* of a cruel and ſavage nature, we preſent to you '*five ſlaves*, that you may *drink* their *blood*, and *eat* their *fleſh*. If 'you are mild *deities*, accept an offer of incenſe and variegated 'plumes. If you are *men*, here is meat, and bread, and fruit to

* Robertſon's Hiſtory of America, and authorities, vol. 1. p. 344. 380.

† Ibid. vol. 2. p. 40.

'nouriſh you *.' Cholula, a town of ſome extent in the empire of Mexico, was conſidered by the inhabitants of New Spain as the ſanctuary and chief reſidence of their gods. To this town pilgrims reſorted from all the provinces, and a greater number of *human victims* were offered in its principal temple than even in that of Mexico †.

When CORTES and his army had made themſelves maſters of part of the city of Mexico, they were almoſt totally overpowered by the numbers and the fierceneſs of their enemies. Beſide thoſe who were ſlain, forty Spaniards were taken priſoners. The Mexicans celebrated their victory with a horrid feſtival. The city was illuminated, and particularly their great temple. By means of the lights, the Spaniards diſtinguiſhed their companions by the whiteneſs of their colour, when compelled to dance naked before the image of the Mexican god, to whom they were about to be ſacrificed. They heard diſtinctly the ſhrieks of thoſe who were *ſacrificed*, and thought they knew the voice of each unhappy *victim* ‡.

The Germans and Celts, after ſacrificing *men* and dogs, ſuſpended the dead bodies in the ſacred groves, ſprinkled their blood on the adjacent trees, on their idol, and on the ſpectators. They afterwards *feaſted* on the *fleſh* of the victims ||. Among the ſame people, a god, either ſupreme, or of the higheſt order, was always honoured with the moſt important ſacrifices, as that of an *only ſon* §.

Human

* Robertſon's Hiſtory of America, vol. 2. p. 42. † Ibid. p. 47.

‡ Ibid. p. 119. 120.

|| Snorro Sturleſonius, in vita Haguini Adeſtani; and Keyſler, Antiquitat. Septentrional. et Celtic. p. 326. 327.

§ Tacitus, Delphin. p. 121. &c.

Human ſacrifices, even in the days of PLATO, were not unfrequent in almoſt every diſtrict of Greece *. The goddeſs DIANA was ſuppoſed to be incenſed, becauſe MELANIPPUS and COMETHO were married in her temple on the very night of a feſtival. The oracle, upon this momentous occaſion, was conſulted; and the reſponſe was, that, to appeaſe her godſhip, a *boy*, and a *girl* of the greateſt *beauty*, ſhould be annually ſacrificed †. To a ſtatue of ſome barbarous divinity, ſaid to have been brought from Taurica to Lacedemon, the oracle commanded that *human ſacrifices* ſhould be offered. But LYCURGUS aboliſhed this horrid rite ‡. PELOPIDAS, when his ſituation in war was critical, dreamed that the favour of the gods muſt be obtained by *ſacrificing* a young *virgin*. Some of his generals inſiſted that the will of the gods ſhould be implicitly obeyed. But others oppoſed the perpetration of a deed ſo ſhocking and unnatural. While, ſays PLUTARCH, the Chiefs were diſputing upon this more than brutal ſubject, and PELOPIDAS himſelf was heſitating, a young *mare*, leaving her paſture, ran towards the camp. THEOCRITUS, the ſeer, inſtantly called out to PELOPIDAS: Behold the victim the gods have prepared for you, and they expect no other *virgin!* The mare, with the uſual ſolemnities, was immediately ſacrificed ‖. It is impoſſible not to recollect the ſimilarity of this event to that of ABRAHAM and his ſon ISAAC. A *mare* and a *ram* make no conſiderable variation in the two ſtories.

The Semnones, a people in the circle of Saxony in Germany, held their religious rites and public deliberations in ſacred groves; and,

* Plato de Legib. lib. 6.; and Travels of Anacharſis, the younger, in Greece, vol. 2. p. 348. Tranſ.

† Pauſan. lib. 7. cap. 16. ‡ Ibid. lib. 3. cap. 16.

‖ Plutarch, vol. 2. edit. Bryan. p.

and, before they came to any determination of moment, they ſacrificed a *man* to their gods *. PLUTARCH, on this ſubject, laughs at the Romans for reprehending the Barbarians, becauſe the latter were addicted to human ſacrifices, a deteſtable practice of which the former were not unfrequently guilty †.

We meet with a ſhocking inſtance of *human ſacrifices* in the reign of AUGUSTUS. After L. ANTONIUS was obliged to ſurrender at Peruſia, AUGUSTUS commanded no leſs than four hundred ſenators and Roman knights, who had taken part with ANTONY, to be *ſacrificed* as *victims* at the altar of JULIUS CÆSAR ‡. The ſame fact is mentioned by SUETONIUS, with this only exception, that he reduces the number of victims to three hundred ‖.

Even in the days of PROCOPIUS, who was one of JUSTINIAN's generals, the Gauls abſurdly ſacrificed *human* victims after the *Chriſtian religion* was eſtabliſhed in their country §; and DITMARUS tells us, that the Normans and Danes ſacrificed annually *ninety-nine men*, along with a number of other animals **. TACITUS relates, that MERCURY was the chief god of the Germans, and that, on certain ſtated days, *human ſacrifices* were offered up to him ††.

What,

* Tacit. de Moribus German. edit Delphin. tom. 4. p. 119.

† Plutarch. de Superſtitione.

‡ Dio Caſſ. edit. Xiphilin. lib. 48. p. 225.

‖ Suetonius in vit. Caeſar. Octavian. Auguſt. § 14.

§ Procop. de Bello Goth. lib. 1.

** Ditmar. lib. 1.

†† Tacit. edit. Delphin. tom. 4. p. 29.

What, in the name of wonder, ſhould have given riſe to an inſtitution ſo apparently contrary to every principle of human nature, and yet ſo univerſally diffuſed over the whole globe? That it originated from ſuperſtition is unqueſtionable. But that anſwer is too general. There muſt be a progreſs in ſuperſtition, as well as in every other acquired affection of the mind. Whenever men, (which muſt have been coeval with their exiſtence), acquired ideas of ſuperior powers, they aſcribed to them human paſſions, and human frailties. If they imagined that, by any action, they had incurred the diſpleaſure of a particular god, or powerful being, terror was the inevitable conſequence. The next feeling was, how is this angry god to be appeaſed? It was not an unnatural thought, that ſuch articles of proviſions as were agreeable to themſelves would not be unacceptable to their gods. They accordingly began with offerings of their choiceſt fruits. But, after a prieſthood was eſtabliſhed, it was ſoon diſcovered that ſuch ſimple offerings were not ſufficient. They taught the people, that the gods liked more ſubſtantial food. The animal tribes were the next objects of propitiation for ſin. This new object was particularly agreeable to the prieſts, who in all ages were fond of good eating. They at firſt contented themſelves with ſacrificing and devouring the feathered tribes, ſuch as turtle-doves, cocks, &c. This anſwered very well for ſome time; but ſtill it was not enough. As the number of prieſts gradually increaſed, birds alone were not thought to be ſufficient to ſupport them. They, therefore, had recourſe to the quadrupeds; becauſe the ſins of the land were ſtill increaſing, in proportion to the increaſe of population. Hence they proceeded to ſacrifice lambs, kids, hogs, rams, and goats. Not ſatisfied ſtill, the prieſts inſiſted that the people, in order to avert the vengeance of the gods, and procure pardon for their numerous and complicated iniquities, ſhould feaſt them with heifers, bullocks,

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and oxen. Theſe prieſts, it ſhould appear, after tiring of birds and the ſmaller quadrupeds, like honeſt Engliſhmen, at laſt gave the preference to good roaſt-beef.

This ſacrifical progreſſion has not hitherto been unnatural. But the ſtep from quadrupeds to the human ſpecies is very wide; yet there are many recorded inſtances, in almoſt all nations whoſe ancient hiſtory has come down to us, of this diabolical practice; and we have ſeen that it ſtill exiſts in moſt of the iſlands of the Pacific Ocean which have been viſited by our late navigators. Here the theory of feeding prieſts may ſeem to fail; but it muſt not be entirely relinquiſhed. In the rude ſtages of ſociety, Cannibals, or eaters of human fleſh, have, at different periods, been diffuſed over the whole habitable globe. Superſtition, or rather ſomething more groſs, muſt have given riſe to an action ſo generally repugnant to human nature. The dreadful inſtitution of murdering and roaſting men, with a view to appeaſe the wrath of the gods, was ſoon ſucceeded by eating their fleſh. When this was perceived by rude and often ſtarved barbarians, the prieſts, or ſuperintendants of ſuch deteſtable rites, preferred men to all other animals. This motive could not be held out to the people. To them a more powerful engine was exhibited. Upon particular emergencies, when their minds were in the higheſt agitations of terror, whether from real or ſuperſtitious cauſes, the poor deluded creatures were told, that the reſentment and wrath of the gods were ſo great, that neither birds nor quadrupeds, nor any of the inferior animals, would be effectual to avert their vengeance. There was only one ſtep farther. Inſtead of birds and quadrupeds, nothing leſs than individuals of the human ſpecies could appeaſe theſe inſatiable gods, the exiſtence of whom was firmly believed by ignorant men, and ſtrongly inculcated by wicked prieſts.

Pelew

Pelew or Palos Iſlanders.

We now willingly abandon the ſhocking ſubjects of cannibals and human ſacrifices, and ſhall proceed to give a more agreeable picture of man in a ſtate not more enlightened by ſcience than ſome of the various people which have already been curſorily deſcribed.

The Pelew or Palos iſlands are ſituated between the 5th and 9th degree of north latitude, and between the 130th and 136th degrees of eaſt longitude from Greenwich, and ſeem never to have been viſited by any European till Captain HENRY WILSON, of the *Antelope Eaſt India packet*, was wrecked on one of their ſhores in the year 1783. Captain WILSON and his ſhip's company, after this diſaſterous event, were apprehenſive leſt the natives ſhould prove to be hoſtile. They, however, diſcovered, that this iſland, the name of which they afterwards learnt to be *Oroolong*, was without inhabitants, but ſurrounded with a group of other iſlands crowded with people. The day after the wreck, two canoes appeared, and were approaching to Oroolong. Every man immediately ran to his arms, which, with a quantity of powder and ſhot, had been ſaved, in order to repel any attack that might be made. Theſe canoes came near the ſhore. Captain WILSON, and THOMAS ROSE, a native of Bengal, who underſtood the Malay and ſeveral other languages, addreſſed the people in the boats, one of whom ſpoke the Malay tongue. They aſked, Who the Antelope's men were, and whether they were friends or foes? To this queſtion THOMAS ROSE was directed to reply, That they were unfortunate Engliſhmen, who had loſt their ſhip upon the reef; that they were friends, and had no inimical

inimical intentions; but that they relied on ſuch aſſiſtance from the natives as men in their calamitous ſituation required. They then came aſhore; and, as was natural, they looked around with a jealous eye, leſt they ſhould be ſurpriſed and injured. The courteous and affectionate manner with which Captain WILSON and the other gentlemen treated them, ſoon removed all their apprehenſions.

The natives of theſe iſlands are of a deep copper colour, and go perfectly naked. They are of a middling ſtature, very erect and muſcular; their limbs are handſome; and they have a peculiar majeſty in their manner of walking. Theſe people came from *Pelew*, the capital of a neighbouring iſland, governed, along with others, by ABBA THULLE, their King or Sovereign, to Oroolong. Their legs as well as thighs were ſo thickly *tattooed*, that their colour was much deeper than that of the reſt of their bodies. They ſeemed to have never known or heard of white men; and therefore conſidered the Engliſh as a very extraordinary race of beings. They were aſtoniſhed to find that the Engliſh allowed hair to grow on their breaſts, which they regarded as a mark of great indelicacy; and, therefore, both ſexes eradicate the hairs from every part of their bodies, except the head. At the firſt interview with King ABBA THULLE, Captain WILSON requeſted permiſſion to build a veſſel to convey himſelf and his unfortunate aſſociates back to their own country; a requeſt to which the King moſt courteouſly aſſented, and promiſed every aſſiſtance in his power to render their diſtreſsful ſituation as comfortable as poſſible. This King, like his ſubjects, was perfectly naked, and, in his perſon, had not the ſmalleſt mark of diſtinction, except what aroſe from his good ſenſe, humanity, and deportment. Theſe innocent people were totally ignorant of fire-arms. Captain WILSON, in order to gratify their curioſity, ordered

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all his men to be armed and drawn up on the beach. After going through ſome evolutions, they fired three vollies in preſence of the King and his attendants, who expreſſed their ſurpriſe by hallowing, jumping, &c. One of the fowls, which had been ſaved from the wreck, was made to paſs acroſs the cove, where Mr BENGER was prepared with his fowling-piece loaded with ſmall ſhot. He fired, and the bird inſtantly dropped, having one wing and one leg broken. Some of the natives took it up, and brought it to the King, who was aſtoniſhed, as he had ſeen nothing paſs out of the gun, how this effect could have been produced.

Some time after, Captain WILSON, and the whole ſhip's company were vexed, and even alarmed, on obſerving an unuſual coolneſs in the aſpect and behaviour of the King. Inſtead of his former open and affectionate manner, he had become moroſe and apparently diſtruſtful. The cauſe of this change, however, when developed, was not only a confirmation of the higheſt honour in the breaſt of the Sovereign, but a proof of the greateſt delicacy of ſentiment. The King was at war with an iſland not far diſtant, called *Artingall.* He meant to make an attack upon that iſland in a few days. He wiſhed to have the aſſiſtance of five Engliſhmen armed with muſkets, piſtols, &c. to aſtoniſh and annoy his enemies. Whenever Captain WILSON diſcovered the nature of the King's requeſt, he inſtantly complied. In a moment, every countenance aſſumed an unuſual gaiety, and perfect harmony and mutual confidence were reſtored. The five men, with THOMAS ROSE the interpreter, accompanied the fleet of King *ABBA THULLE*, which conſiſted of a hundred and fifty canoes filled with warriors. No ſooner did they arrive within a proper diſtance of the enemy's fleet than the muſketry were ordered to be fired. One or two men were obſerved to fall. Terror and

diſmay, at an exhibition ſo far removed from the conception of thoſe iſlanders, inſtantly ſeized them, and they fled with the utmoſt precipitation. The King, elevated by the victory he had ſo eaſily obtained, and the terror which he had excited in the minds of his enemies, returned in triumph to his own dominions, where he was received by his ſubjects with every mark of joy and exultation. Some little time afterwards, the King prepared his canoes and ſoldiers for another expedition againſt Artingall. Ten Engliſhmen, armed as before, with the addition of a ſwivel-gun, were ſolicited from Captain WILSON to attend *ABBA THULLE* and his warriors. This requeſt was alſo granted; and the havock made by the fire-arms was ſo great, that another victory was eaſily obtained by the Monarch of Pelew. Soon after this defeat, peace was concluded between the two contending parties.

Marriage, among theſe people, ſeemed to be a civil contract, which they regard as inviolable. A plurality of wives was allowed, though the number ſeldom exceeded two. *RAA ROOK* had three wives, and the King five; but they did not live together. After a woman was pregnant, though ſhe accompanied her huſband, ſhe never, while in that ſtate, ſlept with him. When any Chief appeared with his two wives, they generally ſat on each ſide of him; and the company paid no more attention to them than what is cuſtomary where the greateſt good manners prevail. One of the Engliſh gentlemen, endeavouring to render himſelf agreeable to a lady by what is uſually termed a marked aſſiduity, *ARRA ROOKER*, with much delicacy, hinted, that ſuch behaviour was not altogether proper.

With regard to their mode of *burying* the dead, Mr SHARP the ſurgeon, and THOMAS HARVEY the boatſwain, ſaw the funeral of

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Raa Rook's ſon, who had fallen in battle. The body was wrapped in a mat, and carried on the ſhoulders of four men, on a machine made of bamboos, and reſembling what is called a *horſe* by our chairmen. Beſide theſe four bearers, the funeral proceſſion conſiſted entirely of women, who inceſſantly ſet up the loudeſt lamentations. The ſame cuſtom formerly exiſted in the north of Scotland, and ſtill prevails in ſome parts of the Highlands and weſtern iſles of that country.

Captain Wilson and his ſhip's company, before their new veſſel could be fitted for ſea, remained three months in Oroolong, and occaſionally viſited ſeveral other of the Pelew Iſlands. During this period they could diſcover no marks of a public *religion* of any kind among theſe iſlanders: But they uniformly exhibited the greateſt examples of *humanity* and *moral rectitude*, which ought to be the genuine characteriſtics of all religions, whatever diverſity of ceremonials they may happen to aſſume. But, though theſe people have no place of *public* worſhip to which they reſort, both their private and political virtues are ſo eminently conſpicuous, that it is almoſt impoſſible they ſhould not have ſome idea of a ſupreme and a benevolent Deity. The people of Pelew, however, diſcovered ſome portion of ſuperſtition; for, when King *Abba Thulle* ſaw a particular ſpecies of *wood* employed in the conſtruction of the new ſhip, he expreſſed a wiſh that this wood ſhould be removed, as he conſidered it as a *bad omen*, or *unpropitious*. They had likewiſe a notion of an evil ſpirit, that often counteracted human affairs. When the ſecond mate, Mr *Barker*, fell backward from the ſide of the veſſel then on the ſtocks, *Raa Rook*, who happened to be preſent, ſaid, the accident was owing to the *unlucky wood*, which had been allowed to remain in the veſſel, that the evil ſpirit had brought this misfortune upon Mr *Barker*.

They ſeemed to have alſo a ſtrong notion of divination. When about to undertake any affair of moment, by ſplitting the leaves of a plant ſimilar to our bullruſh, and meaſuring or twiſting theſe ſtrips upon their middle finger, they imagined they could diſcover whether the event would be proſperous or adverſe. *Captain* WILSON, in converſation with *LEE BOO*, King *ABBA THULLE's* ſecond ſon, after his arrival in England with the Captain, told him, that the intention of ſaying prayers at church was in order to make men good, and that, when they died, and were buried, they might live again *above*, pointing to the ſky; *LEE BOO*, with great eagerneſs, replied—*All ſame* PELEW—*Bad men ſtay in earth—good men go into ſky—become very beautiful*, holding his hand in the air, and giving a fluttering motion with his fingers. This ſingle circumſtance indicates, in the moſt unequivocal terms, that theſe innocent people firmly believe the exiſtence of the ſoul after the diſſolution of the body, and have an idea of future rewards and puniſhments correſponding to the virtuous or vicious behaviour of individuals.

It is a ſingular circumſtance in the hiſtory of theſe people, that, if an *attack* is intended againſt an *hoſtile* iſland, inſtead of ſurpriſing the enemy, intimation is uniformly given of the time when the aſſault is to be made. Though illuſtrious patterns of humanity, they put to *death* every *priſoner* taken in *war*. This ſeeming cruelty, however, muſt not be haſtily condemned. It is not performed with the inſulting ſolemnities of ſeemingly *legal trials*, like the execrable conduct of the preſent *French Convention*, which will for ever remain a moſt deteſtable and humiliating proof of the *barbarity* of what has, till now, been eſteemed one of the moſt *civilized* nations in Europe. The Pelew Iſlanders, on the contrary, never kill their priſoners but inſtantly after a victory is obtained, before the effervescence of animoſity

moſity is allayed; and the poor victims are deprived of life by thoſe who are either ſmarting under *perſonal* wounds, or who have loſt ſome near *relation* in the combat.

It has formerly been related, that the inhabitants of the South Sea Iſlands are addicted to *petty thefts*. In the *Pelew* Iſlands inſtances of theft likewiſe occurred; but this *crime*, if in them it merits that appellation, was always confined to the lower claſs of people. When a theft, however, was committed, the King and his Chiefs conſidered it as a groſs breach of hoſpitality, made ſtrict inquiries after the thief, whom they generally diſcovered, and reſtored the articles. 'Should 'ſome eaſtern prince,' Captain WILSON humanely remarks, as an apology for the Pelewers, 'magnificently decorated, accidentally, as he 'paſſed along, drop a diamond from his robe, and were a poor peaſant (knowing how great an acquiſition it was), to ſee it ſparkling 'in the duſt, where is that reſiſtance, that ſelf-denial, which would 'go in and leave it untouched?—A nail, a tool, or a bit of old iron, 'was to *them* the alluring diamond.'

We muſt not leave theſe amiable people, till a ſhort ſketch of the character and feelings of LEE BOO, who was brought from Pelew to England by Captain WILSON, ſhall be given. This young Prince was about twenty years of age when he arrived in a *New World*. His natural diſpoſition was mild, affable, ſprightly, and affectionate. He diſcovered, on all occaſions, a keen ſpirit of inveſtigating the cauſes or effects which to him were at firſt incomprehenſible. After landing at Macao, he was conducted, along with his protectors and friends, to the houſe of Mr M'INTYRE, and brought into a large hall, which was lighted with candles, a table being placed in the middle covered for ſupper, and a ſideboard handſomely ornamented.

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This new ſcene filled LEE BOO's mind with amazement. But the glaſs-veſſels ſeemed principally to arreſt his attention. He fixed his eye upon a large mirror, which nearly reflected his whole body. Here he ſtood ſome time loſt in aſtoniſhment. He then laughed, drew back, and, abſorbed in wonder, returned to view this ſtrange appearance. He looked, as young children, when placed in the ſame circumſtances, uniformly do, behind the mirror, to ſee if any perſon was there. As there were no quadrupeds in his country, except two dogs which had been left there by the Engliſh, the ſheep, goats, and cattle he ſaw at Macao, were objects which ſtruck his mind in the moſt forcible manner. One of the dogs left at Pelew was a Newfoundlander, and his name was *Sailor*. LEE BOW, from this circumſtance, denominated every quadruped he ſaw, whether ſmall or great, *Sailor*. A horſe was a *large ſailor*, &c. Obſerving a man paſs the houſe on horſeback, he was ſo aſtoniſhed, that he preſſed every perſon in company to go and ſee ſo ſtrange a phaenomenon.

When on his voyage to England in the Morſe indiaman, Captain ELLIOT, he was very deſirous of learning the name and the country of every ſhip that paſſed. As each inquiry was gratified, he made an additional *knot* on his *line*. Theſe *knots* were to him the ſame as written memorandums to us. But, as the knots ſoon became numerous, to refreſh his memory, he was obliged to read them over every day. The officers of the Morſe, when they ſaw him ſtudying his *line*, uſed to ſay he was *reading* his *journal*. He ſollicited Captain WILSON to be inſtructed in the uſe of letters and of reading, which was readily acquieſced in; and he was very attentive and alert in comprehending every ſpecies of information he received. On arriving at St Helena, he was much ſtruck with the ſoldiers and cannon on the fortifications. When walking in the Company's garden, he

was

was pleaſed with ſome ſhady walks formed with bamboos arching overhead on lattice-work; and remarked that his own countrymen were ignorant of many advantages they might eaſily obtain. Like a philoſopher and patriot, every uſeful and extraordinary thing that occurred in his travels, he noted down in his manner, and with the uniform view of improving his countrymen when he ſhould return to his native ſoil. The Morſe arrived at Portſmouth on the 14th day of July 1784. When LEE BOO landed, the number and magnitude of war ſhips in the harbour, the variety and ſtructure of the houſes, and the ramparts, ſo rivetted and abſorbed his mind, that he found himſelf unable to aſk any queſtions. When he reached London from Portſmouth, he was conveyed to Captain WILSON's houſe at Rotherhithe. He arrived in his natural glow and youthful ſpirits. What he had remarked in ſilence, was now diſcloſed with vivacity and intelligence. He deſcribed the incidents of his journey, and ſaid that it was very pleaſant; that he had been put into a little *houſe*, which was run away with by *horſes*; that he ſlept, but was ſtill proceeding in his journey, and that, whilſt he was moved one way, the *fields*, the *houſes*, and the *trees*, went in the contrary direction. At the hour of reſt, he was conducted to his chamber, where, for the firſt time, he ſaw a fourpoſt bed. Not knowing for what purpoſe it was intended, he repeatedly jumped in and out, and felt and pulled aſide the curtains. At length, being acquainted with its uſe, he laid himſelf down to ſleep, ſaying, that, in England, there was *a houſe for every thing*. Being aſked his opinion of England and of his preſent ſituation, he inſtantly replied, *All fine country, fine ſtreet, fine coach, and houſe upon houſe up to ſky*.

LEE BOO was ſent to an academy, to be inſtructed in reading and writing. Whilſt there, his manner and deportment ſoon gained him the

the eſteem of the maſter, and the affection of his young companions. In the hours of receſs from ſchool, he amuſed Captain WILSON's family with his vivacity and good humour. He mimicked ſuch peculiarities as he obſerved in the manners and behaviour of his ſchool-fellows, and often ſaid, that, when he returned to *Pelew*, he would have a ſchool of his own, and ſhould be thought very wiſe *when he taught the great people their letters.* He always called Mr WILSON *Captain;* but he uniformly gave the appellation of *Mother* to Mrs WILSON, conſidering it as a greater mark of affection and reſpect. He was often told, that he ſhould ſay *Mrs WILSON;* but his conſtant reply was, *No, no—Mother, Mother.* When ſollicited for charity by *young* people of either ſex, he told them, that it was ſhameful to *beg* as long as they were able to *work;* but the ſollicitations of *old age* he could never reſiſt, ſaying to himſelf, LEE BOO *muſt give poor old man—old man not able to work.* Captain WILSON and the young Prince, when dining with Mr KEATE, a friend of Mr WILSON, and well known to LEE BOO, a miniature picture of Mr KEATE was exhibited; LEE BOO, taking the picture into his hand, inſtantly recognized the likeneſs, and exclaimed, *Miſſer* KEATE—*very nice, very good.* Captain WILSON aſked him, if he underſtood what it repreſented? He replied, LEE BOO *underſtand well—That Miſſer* KEATE *die—This Miſſer* KEATE *live!* A volume on the utility of portrait-painting could not contain more than theſe few forcible words uttered by this untutored child of Nature.

Every uſeful or uncommon object which he ſaw he examined with attention, and, like a true philoſopher and patriot, conſidered whether it might be rendered uſeful to his own country. When in gardens, he remarked particularly the eſculent plants and fruit-trees, aſked many queſtions concerning them, and ſaid that, when he returned home,

home, he would carry ſeeds of ſuch of them as he thought would grow to perfection in *Pelew*. While rapidly advançing in the knowledge of the Engliſh language, and in the art of writing, notwithſtanding all the precautions of his friends, he was ſeized with the ſmall-pox, of which he died in a few days. When very bad, he accidentally heard that Mrs WILSON was indiſpoſed, and confined to bed, he became impatient, and exclaimed, *What, mother ill?* LEE BOO *go up to ſee her.* On the Thurſday before his death, when walking acroſs the room, he looked at himſelf in the glaſs. His face being then ſwelled and diſfigured, he ſhook his head, turned away as if diſguſted with his appearance, and ſaid to Mr SHARP the ſurgeon, that *his father and mother much grieve, for they knew he was very ſick.* Growing worſe in the evening, he ſeemed to think himſelf in danger. He took Mr SHARP by the hand, and looking ſtedfaſtly on him, ſaid, *Good friend, when you go to* PELEW, *tell* ABBA THULLE *that* LEE BOO *take much drink to make ſmall-pox go away, but he die; that the Captain and mother very kind—all Engliſh very good men;—was much ſorry he could not ſpeak to the King the number of fine things the Engliſh had got.* Though his feelings and pain muſt have been acute, his ſpirit would not allow him to complain. Mrs WILSON's chamber being adjacent to his own, he often called out to know if ſhe was better, always adding, leſt ſhe ſhould ſuffer on his account, LEE BOO *do well, Mother.* Soon after his interment in Rotherhithe church-yard, the INDIA COMPANY ordered a tomb to be erected over his grave with the following inſcription:

To the Memory
Of Prince LEE BOO,
A native of the PELEW, or PALOS Iſlands;
And ſon to ABBA THULLE, Rupack or King
Of the Iſland COOROORAA;
Who departed this life on the 27th of December
1784,
Aged 20 years;
This Stone is inſcribed,
By the Honourable United Eaſt India Company,
As a Teſtimony of Eſteem
For the humane and kind Treatment afforded
By his FATHER to the Crew of their ſhip
The ANTELOPE, Captain WILSON,
Which was wrecked off that Iſland
In the night of the 9th of Auguſt 1783.

Stop, Reader, ſtop!—let NATURE *claim a tear—*
A Prince of MINE, *LEE BOO, lies buried here.*

Upon the whole, no poet, either for character, ſituation, or incident, can have a better ſubject for a *Tragedy*, than is afforded by the *Hiſtory of Prince* LEE BOO *.

THIS

* This ſhort narrative concerning the Pelew iſlanders is extracted from *An Account of the Pelew Iſlands, compoſed from the Journals of Captain* HENRY WILSON, *and ſome of his officers, by the ingenious* GEORGE KEATE, *Eſq; F. R. S. & S. A.*

THIS intereſting Chapter muſt not be concluded without ſome general reflections. The reader has now been conducted through almoſt every region of the globe which has hitherto been viſited by Europeans of intelligence. Though, in different climates, men vary in colour, appearance, and manners; yet the human character, however diverſified, is not only recognizable, but perceived to be uniformly and diſtinctively the ſame. It is not by colour, nor even form, but by mental powers, that men riſe ſuperior to all other animated beings in this planet.

RELIGION.

IN every country, however remote from civilization, traces of RELIGION, or of *ſuperſtition*, are diſcernible. The forms, the objects, and even the effects of religion, according to circumſtances and ſituations, aſſume different aſpects; but the ſentiments excited are nearly ſimilar. The ſavage who ſtarves and ſhivers in a dreary frozen region, though he believes the exiſtence of ſuperior beings, naturally regards them as cruel and unpropitious. But, in climates of which the genial warmth multiplies and matures the productions of Nature, the ideas of the characters of gods and goddeſſes become more mild and benign. Men, placed in circumſtances ſo highly favourable to happineſs, feel gratitude to the Author or Authors of the numberleſs comforts they daily enjoy. Furniſhed with food in abundance, and having perpetually before their eyes the moſt delightful ſcenery, they poſſeſs an hilarity of ſpirit, which makes them ever gay and vivacious. Gloomy ideas, and dreadful apprehenſions of futurity, are baniſhed from their thoughts. Still, however, death,

the many phyſical evils of life, and fortuitous calamities produced by the elements, by earthquakes, and by occaſional inundations, alarm their minds, and excite the idea of *bad* as well as of *good* DEITIES. Theſe notions of *good* and of *bad* ſpirits, who ſuperintended all human affairs at certain periods of ſociety, were univerſal in all religions of the ancient ſtates of which we have any hiſtorical knowledge. Greece and Rome were formerly overwhelmed with deluges of gods and goddeſſes, both ſuperior and infernal. Hills, mountains, rivers, ſprings, the earth, the ſea, the ſun, moon, and conſtellations, were all held ſacred, or conſidered as ſo many ſeparate deities, to whom diſtinct offices were aſſigned, and particular rites and ſacrifices performed at their reſpective ſhrines. Though men, by moral doctrines far more ſublime, and more conſonant to reaſon, were long ago favoured with the genuine principles of Theiſm, or of the exiſtence of One great CREATOR and Governour of the univerſe; yet many of the ancient ſuperſtitions, abſurd notions and practices, ſtill ſubſiſt in ſeveral populous nations of Europe, Aſia, &c.

At a very early period of Chriſtianity, a Prieſthood, or eccleſiaſtical Hierarchy, was eſtabliſhed. The ſimplicity, the purity, and the univerſal benevolence of the Chriſtian ſyſtem, could not be ſuddenly embraced by men who had long been habituated to the pompous impreſſions and exhibitions of Paganiſm, which had been rivetted in their minds. The early teachers of Chriſtianity perceived this alarming obſtacle to the propagation of the Goſpel. To remove this obſtacle, however, and to accommodate matters, theſe teachers, with, it muſt be ſuppoſed, the moſt zealous and upright intentions, adopted a number of heathen ideas and practices, and incorporated them with the faith of what was emphatically denominated the *Catholic Church*. The leaders and

paſtors

paſtors of this Church perceived the advantages they might derive from this motely jumble of Chriſtianity and Paganiſm. Between theſe two inconſiſtent, and naturally oppoſite ſyſtems of religion, the minds of men were confounded and intimidated. The power of the POPE, who was regarded not only as the head of the church, but as the *Vicar* or *repreſentative* of CHRIST upon earth, ſoon increaſed to ſuch an enormous degree, that, not the people only, but every Monarch in Europe, trembled at his *anathemas*, and ventured not to take any important ſtep, even in political affairs, without the approbation of his *Holineſs!* But the ambition of the POPE, and of his numerous tribes and orders of rapacious Prieſts, had no bounds. Not Kings and Princes alone, but the pooreſt private families, were laid under monſtrous contributions, to pamper the *ſtomachs*, and miniſter to the *luſts* of theſe *holy locuſts*, the moſt deſtructive and inſatiable of all *vermin*. The arts employed to promote theſe *diabolical*, falſely called *religious* purpoſes, were various, and ſometimes ingenious. The raptures of *heaven*, and the torments of *hell*, were depicted in the higheſt colourings which imagination could invent, or terror ſuggeſt. To procure the one, and to avoid the other, *money*, *goods*, or *victuals*, were the neceſſary articles of exchange. Thoſe mental tyrants, to complete their ſyſtem of deluſion and of depredation, ſealed up every ſource of information from the people, but what they choſe to impart in artful and diſguiſed forms. Factitious miracles were preſented to the vulgar and believing eye. *Abſolutions* for actual *crimes*, and *diſpenſations* from ceremonies and rules of the church, were *ſold*. A *purgatory*, or ſtate of temporary puniſhments to *ſouls* that were either to be eternally *damned* or *ſaved*, according to the *ſums* paid for the prayers of mercenary, and generally ignorant and ſubaltern prieſts, was invented. In a word, a thouſand tricks and impoſitions were employed to augment the power and riches

riches of the church. The *Pope* became the greateſt Emperor that ever reigned on earth; for his dominion was not only territorial but mental. This inhuman and ſordid deſpotiſm continued for many centuries, and ſo clouded the minds of men with ignorance, ſuperſtition, and timidity, that their natural powers were totally blunted. This period of *Papal* ſovereignty was afterwards, with much propriety, denominated the *dark ages*; for, whenever a ſpark of genius burſt through the univerſal gloom, it was inſtantly extinguiſhed by the authority of the church.

The ſpirits of men may, for a time, be depreſſed and debaſed by religious and political bugbears; but, from the hiſtory of human ſociety, we learn, that this humiliating and lamentable condition of mankind cannot always ſubſiſt. Some bold and enlightened minds ſtart up, aſſume their native rights, and, by their inſtruction and example, gradually looſen the chains of bigotry and oppreſſion. This happy revolution took place, though later than might have been expected, in the weſtern and northern parts of Europe. Amidſt the threatenings of *bulls*, amidſt *proſcriptions*, *murders*, and *maſſacres*, daily inroads were made upon the rapacious deſpotiſm of the Pope and his abhorrent aſſiſtants. Men of knowledge, and of generous and ardent minds, aroſe. The art of *printing*, which enabled them to diffuſe light and learning, was invented. The people ſaw with aſtoniſhment the ignorance and thraldom under which they had been enſlaved. They ſpurned at ſpiritual tyranny, and with indignation threw off its yoke. A reformation in religious opinions and in church-government was eſtabliſhed upon more rational principles. Since that glorious period, which does honour to human nature, the influence of this prepoſterous and infernal ſpecies of religion has gradually

gradually declined, and, by ſome late events, is now nearly annihilated; and, it is to be hoped, that nothing ſimilar will ever again inſult and diſgrace the characters of rational beings.

WAR.

BESIDE Religion, human nature is ſtamped with another univerſal character. *Hoſtilities* were coeval with the exiſtence of man, and ſtill continue to deluge the earth with blood. Avarice, reſentment, ambition, competition of intereſts, real or imaginary, are enumerated among the cauſes of *war*. But what, in the name of wonder, can be the *final* cauſe of cruelty, ſlaughter, and devaſtation? War, it has been ſaid, gives riſe to fortitude, vigilance, and other active powers of the mind. But, are there not a thouſand motives capable of exciting and calling forth theſe powers, without being attended by ſuch horrible effects? As an apology, it has been alleged, that, were it not for the intervention of war, men would increaſe to ſuch a degree that the earth could not afford them ſuſtenance. This attempt toward a ſolution of the difficulty is founded on ignorance or inatttention. There is not a country in the habitable parts of the world which, with proper induſtry and culture, is not much more than ſufficient to maintain the animals to which it gives birth. This final cauſe of war muſt, therefore, be relinquiſhed till ſuch an event, which is impoſſible, takes place. Nature has provided many effectual checks to a ſuperabundant population. One half of the human race periſh before they arrive at their ſeventh year. Thoſe who ſurpaſs this period of exiſtence are hourly cut off by innumerable diſeaſes and accidents. Few, very few, reach what is called *old age*, or fourſcore years.

Where,

Where, then, is the neceſſity which forces men to *exterminate* one another from the face of the earth? The *paſſions* were beſtowed upon us for the *wiſeſt* purpoſes; but we too often give to theſe paſſions a direction contrary to the original intentions of Nature. But why ſhould we be both *willing* and *able* to *pervert* the benevolent purpoſes of Nature? I will proceed no farther. The ſubject, though curious, is inextricable: I ſhall therefore diſmiſs it, by lamenting that ſtate of human nature which, even in the preſent *luminous* condition of Europe, is ſtill producing the moſt horrible, the moſt ſhocking examples of *madneſs* and *cruelty!* *.

POSTSCRIPT.

* Conſider Europe at the moment I write—*Quem Deus vult perdere prius dementat.*

POSTSCRIPT.

COMMODORE BYRON, in his Voyage round the World *, mentions the following circumſtances concerning the Patagonians he ſaw while he was in the Straits of Magellan. When he came to an anchor in the Straits, he obſerved a number of horſemen riding backward and forward, and waving ſome white ſubſtance as an invitation to come on ſhore; upon which he ordered out a twelve-oared boat, and made toward the beach. When Captain BYRON and his attendants came within a ſmall diſtance from the ſhore, they ſaw about five hundred people, ſome on foot, but the greater part on horſeback. No weapons were perceived among them. Signs, however, were made, that they ſhould retire a little from the ſhore, and they immediately complied. He drew up his people, with proper officers at their head, upon the ſhore, and gave orders that none of them ſhould quit their ſtations till he ſhould call or beckon to them. He then approached alone toward the Indians; but, as they always retired, he made ſigns that one of them ſhould come near. One of their number accordingly came. 'He was,' ſays Mr BYRON, 'of 'a gigantic ſtature, and ſeemed to realize the tales of monſters in a 'human ſhape. He had the ſkin of ſome wild beaſt thrown over 'his ſhoulders, as a Scotch Highlander wears his plaid, and was 'painted ſo as to make the moſt hideous appearance I ever beheld. 'Round one eye was a large circle of white; a circle of black ſur-'rounded the other; and the reſt of his face was ſtreaked with paint 'of different colours. I did not meaſure him; but, if I may judge 'of his height by the proportion of his ſtature to my own, it could 'not be much leſs than ſeven feet. When this frightful Coloſſus

* Hawkeſworth's edit. vol. 1. p. 27. *et ſeqq.*

'came up,' we muttered ſomewhat to each other as a ſalutation; 'and I then walked with him towards his companions, to whom, 'as I advanced, I made ſigns that they ſhould ſit down; and they 'all readily complied. There were among them many women, 'who ſeemed to be proportionally large; and few of the men were 'leſs than the chief who had come forward to meet me.—They 'were all painted and clothed nearly in the ſame manner.—Their 'teeth were as white as ivory.—Except the ſkins, which they wore 'with the hair inwards, moſt of them were naked, a few only having upon their legs a kind of boot, with a ſhort pointed ſtick faſtened to each heel, which ſerved as a ſpur. Having looked round 'upon theſe enormous goblins with no ſmall aſtoniſhment, and with 'ſome difficulty made thoſe that were ſtill galloping up ſit down 'with the reſt, I took out a quantity of yellow and white beads, 'which I diſtributed among them, and which they received with 'very ſtrong expreſſions of pleaſure.' Commodore BYRON diſtributed other trinkets among them, ſuch as ribbons, &c. 'Their 'peaceable and orderly behaviour on this occaſion,' our author remarks, 'certainly did them honour, eſpecially as my preſents did 'not extend to the whole company. Neither impatience to ſhare 'the new finery, nor curioſity to gain a nearer view of me and what 'I was doing, brought any one of them from the ſtation that I had 'allotted him.'

Captain WALLIS * informs us, that he meaſured ſome of the Patagonians who appeared to be the talleſt; that one of them was ſix feet ſeven inches high; that ſome of them were ſix feet ſix, and others ſix feet five inches; but that the ſtature of moſt of them was from five feet ten to ſix feet. Their complexion, like that of the North

* Wallis's Voyage round the World, in Hawkeſworth, vol. 1. p. 374.

North American Indians, is of a dark copper colour. Their hair is ſtraight, and nearly as hard as the briſtles of hogs. They are well made, robuſt, and ſtrong; but their hands and feet are remarkably ſmall. They are clothed with the ſkins of the guanico, an animal which, in ſize, figure, and colour, reſembles a deer; but there is a bunch on its back, and it has no horns. It was remarked, that ſome of the men had a red circle painted round the left eye, and that others had their arms and different parts of their faces painted. The eye-lids of all the young women were painted black. They talked much; but, when ſpoken to in Spaniſh, Portugueſe, and Dutch, they made no reply. Of their language we were equally ignorant. They had a ſingular kind of miſſile weapon. It was compoſed of two round ſtones, covered with leather, each about a pound weight, and were faſtened to each end of a ſtring about eight feet long. This weapon they uſe as a ſling, one of the ſtones being kept in the hand, and the other is whirled round the head, till it has acquired ſufficient velocity, and is then diſcharged at the object. So dexterous are they in the management of this double-headed ſhot, that, at the diſtance of fifteen yards, they can hit a mark not larger than a ſhilling. In hunting the guanico or the oſtrich, however, they diſcharge theſe weapons in ſuch a manner, that the cord entangles the legs of the animals, who then become an eaſy prey.

'After I had ſpent about four hours with theſe people, I made ſigns 'to them that I was going on board, and that I would take ſome of 'them with me, if they were deſirous to go. As ſoon as I had 'made myſelf underſtood, above an hundred eagerly offered to viſit 'the ſhip; but I did not chuſe to indulge more than eight of the 'number. They jumped into the boats with the joy and alacrity 'of children going to a fair, and, having no intention of miſchief

'againſt us, had not the leaſt ſuſpicion that we intended any miſchief 'againſt them. They ſung ſeveral of their country ſongs while 'they were in the boat; and, when they came on board, did not 'expreſs either the curioſity or wonder which the multiplicity of 'objects, to them equally ſtrange and ſtupendous, that at once pre-'ſented themſelves, might be ſuppoſed to excite. I took them 'down into the cabin, where they looked about them with an un-'accountable indifference, till one of them happened to caſt his eyes 'upon a looking-glaſs, which afforded them infinite diverſion. They 'advanced, retreated, and played a thouſand tricks before it, laugh-'ing violently, and talking with great emphaſis to each other.— 'They eat indiſcriminately whatever was offered to them; but they 'would drink nothing but water. From the cabin I carried them 'all over the ſhip; but they looked at nothing with much attention, 'except the animals which we had on board for live ſtock. They 'examined the hogs and ſheep with ſome curioſity, and were ex-'ceedingly delighted with the Guinea hens and turkeys. They did 'not ſeem to deſire any thing they ſaw, except our apparel; and 'one of them, an old man, aſked for that. We gratified him with 'a pair of ſhoes and buckles; and to each of the others I gave ſome 'trinkets.—I ſhowed them the great guns; but they did not appear 'to have any notion of their uſe. After I had carried them through 'the ſhip, I ordered the marines to be drawn up, and go through 'part of their exerciſe. When the firſt volley was fired, they were 'ſtruck with aſtoniſhment and terror. The old man, in particular, 'threw himſelf down upon the deck, pointed to the muſkets, and 'then, ſtriking his breaſt with his hand, lay ſome time motionleſs, 'with his eyes ſhut. By this we ſuppoſed he intended to ſhow us, 'that he was not unacquainted with fire-arms, and their fatal effect. 'The reſt, ſeeing our people merry, and finding themſelves unhurt,

'ſoon

'ſoon reſumed their cheerfulneſs and good humour, and heard the 'ſecond and third volley fired without much emotion; but the old 'man continued proſtrate upon the deck for ſome time, and never 'recovered his ſpirits till the firing was over. When the boat put 'off with them, they all began to ſing, and continued their merri-'ment till they got on ſhore *.'

Nootka Bay—Prince William's Sound.

THE inhabitants are generally of a ſhort ſtature, and ſquare-made. The faces, both of men and women, are flat and round, with high cheek-bones, and flattiſh noſes. Their teeth are white; their eyes dark, and quick-ſighted. Their complexions are whiter than thoſe of the ſouthern Indians; and ſome of the women have roſy-coloured cheeks. Their hair is black, ſtraight, and long; and, on the death of a friend, as a mark of mourning, they cut it ſhort. The legs of the men are, in general, ill ſhaped, which Captain PORTLOCK attributes to their ſitting perpetually in the ſame poſition in their canoes. They are as fond of what they eſteem perſonal ornaments; for they paint their faces and hands, bore their ears and noſes, and ſlit their under-lips. In the holes made in their noſes, they hang ornaments of bone or of ivory, which are often two or three inches long. At the ears they generally wear beads, which hang down to the ſhoulders; and, in the ſlit in the lip, they place a bone or ivory inſtrument with holes in it, from which they ſuſpend beads that reach as low as the chin. Theſe holes in the lip diſfigure them greatly; for ſome of them are as large as their mouths. With all this fancied finery, however, in their perſons they are extremely filthy, and over-

run

* Captain Wallis's Voyage round the World, Hawkeſworth, vol. i. p. 375. &c.

run with vermin. Their clothing conſiſts entirely of the ſkins of quadrupeds and of birds. In general, they are a friendly people, and remarkably affectionate to their wives and children. But your attention to their women muſt be carried no farther than giving them preſents; for nothing irritates them ſo much as taking improper liberties with their females. Like all other Indians, they have a ſtrong propenſity to ſtealing, not only from ſtrangers, but from one another. 'In the courſe of my trading with them,' ſays PORTLOCK, 'I have frequently ſeen them ſteal from one another; 'and, on being detected, they will give up the articles they have 'ſtolen with a laugh, and immediately appear as unconcerned as if 'nothing had happened amiſs. I am ſure, that with them thieving 'is rather thought a grace than a diſgrace; and the complete thief 'is a clever fellow, but the burgling pilferer is leſs admired.— 'During our intercourſe with them, they grew leſs addicted to 'thieving, in conſequence of my ſometimes appearing a little angry 'with them, and taking ſome pains to convince them of the impro-'priety of their behaviour. Upon the whole, they appear a good 'kind of people; and I am convinced, in a little time, provided a 'ſettlement of ſufficient ſtrength were eſtabliſhed, would be an in-'duſtrious ſet of people, in hunting and procuring the ſea-otter and 'other ſkins for ſale to the ſettlers *.'

Both men and women eſteem long hair as an ornament. When a relation dies, they cut their hair pretty ſhort, a general mark of mourning among all theſe Indian tribes. Polygamy ſeems not to be practiſed here; 'as I never obſerved,' PORTLOCK remarks, 'any 'one of them to have more than one woman, whom he ſeemed to 'conſider as his wife, to whom they pay very ſtrict attention, and 'treat

* Portlock's Voyage round the World, from the year 1785 to 1788, p. 249. &c.

'treat with a great deal of tenderneſs. You cannot affront them 'more than by attempting to make advances to their wives. They 'are likewiſe very fond of, and remarkably affectionate to, their 'children. It is not the cuſtom with thoſe people, as with the 'South Sea Iſlanders, for the men and women to eat ſeparately; nor 'are the women confined to eat meats of a particular deſcription; 'but for men, women, and children, to ſit down indiſcriminately at 'their meals, which chiefly conſiſt of fiſh of different kinds.— 'Their perſons are, in general, much about the ſize of Europeans. 'The men have a very fierce and ſavage aſpect, which, with their 'dreſs, gives them much the appearance of warriors. Their wea- 'pons of war are daggers and long pointed ſpears. They are very 'eaſily irritated, and would make very little ſcruple to kill you 'when they think themſelves injured. More than once I had near- 'ly experienced that fate, from ſome trifling diſagreements in trade. 'But, being pretty well acquainted with their tempers, I guarded as 'much againſt them as poſſible; and, on all occaſions, took care to 'be well provided for them, in caſe of an attempt, by keeping my 'piſtols ready-charged before me *.'

Captain PORTLOCK likewiſe informs us, that their women, if kept clean, inſtead of being perpetually covered with filth and naſtineſs, would be very agreeable. In general, their features are pleaſant, and their behaviour modeſt.

'The ineſtimable value of the American furs,' Captain PORTLOCK remarks, 'will ever make it a deſirable trade, and, whenever 'it is eſtabliſhed upon a proper foundation, and a ſettlement made, 'will become a very valuable and lucrative branch of commerce.

'It

* Portlock's Voyage, p. 290. &c.

'It would be an eaſy matter for either Government or our Eaſt 'India Company to make a ſettlement of this kind; and the thin-'neſs of the inhabitants will make it a matter of eaſy practicability; 'and, as the Company are under the neceſſity of paying the Chineſe 'in caſh for their teas, I look upon it a ſettlement on this coaſt 'might be effected at a very inconſiderable expence, which would 'more than pay them for every article that is brought from China.'

CHAP.

CHAPTER V.

Of Sleep and Dreaming.

SECT. I.

Of the Nature and efficient Cauſes of Sleep and Dreaming—Dreams characteriſtic of the Dreamer—Inſtead of a Diary, a Nocturnal would more effectually unfold the real Diſpoſitions of Men—Specimen of a Nocturnal—Utility of Dreaming—Dreams not peculiar to Man.

AMONGST the various powers and operations of the human mind, none make a more capital figure than that of the *imagination.* To this faculty we are principally indebted for that great variety of pleaſure and amuſement which make life agreeable, and reconcile us to the many pains and difficulties incident to our ſpecies. By imagination, as far as relates to the preſent ſubject, is meant, that operation of the mind which recals paſt ideas, or ſeparates and combines ideas in a manner ſo lively, that the objects they repreſent ſeem to have a real exiſtence, and affect us accordingly.

This definition of imagination, though by no means complete, is ſufficient for my preſent purpoſe. Every man *dreams* more or leſs. As far as I can learn, this ſubject has never been treated of in a rational or philoſophical manner *.

Sleep is the principal, though not the only ſource of dreams. I ſhall, therefore, make a few obſervations on that ſtate of our exiſtence which is ſo fertile in producing the phenomenon under conſideration.

Man, while awake, is a very paſſive animal. Independently of his own inclination, his eyes and ears are conſtantly receiving impreſſions from a multiplicity of external objects. He is likewiſe ſtimulated by his other ſenſes and bodily powers. His ſtomach muſt be alternately filled and emptied. The ſpring of his nerves and muſcles neceſſarily impels him to motion. The pain of inactivity itſelf is ſufficient to ſpur him on to action. But, no organ of the body, no faculty of the mind, can admit of long-continued action, without laſſitude or a diſpoſition to reſt.

During ſleep, our organs are no longer ſubject to receive impreſſions paſſively from external objects; the elaſticity of the nerves and muſcles is greatly relaxed; but the imagination, inſtead of being blunted, is whetted, and rendered more active. To give free ſcope to the imagination, it ſeems neceſſary that all communication with external objects ſhould be entirely cut off. Having curſorily mentioned the principal circumſtances and ſituations favourable to ſleep and dreaming, we ſhall next inquire whether any analogous circumſtances

* The ſubſtance of this chapter was read before the *Newtonian Society* of Edinburgh in the year 1764.

ſtances and ſituations exiſt when our ſenſes and other powers are awake.

The great variety of characters, tempers, and peculiar biaſſes exhibited in human nature, renders it difficult to ſelect any general turn of mind as a proper example for illuſtrating this ſubject. Theſe differences, however, are not confined to men when awake. Dreams, on the contrary, are as characteriſtic of the genius or diſpoſitions of any individual as his waking thoughts. A man whoſe ordinary train of thinking is quick and lively, will never find the quickneſs or vivacity of his perceptions retarded or blunted by ſleep. For elucidating this point, I ſhall make choice of a perſon who is naturally inclined to indulge reveries. Let us ſee how a perſon of this deſcription is affected by the common occurrences of life. We ſhall firſt ſuppoſe him walking along the ſtreets of a populous city. Numbers of objects preſent themſelves on every hand, and ſolicit his attention. Among others, the rapid motion and noiſe of a coach oblige him to fly ſuddenly to a ſide, in order to eſcape from danger. His fortunate eſcape at firſt gives him pleaſure. But, upon reflection, he cannot refrain from repreſenting to himſelf, by means of the imagination, how miſerably he ſhould have been bruiſed, had he been leſs ſwift in his movements. This thought continues to torment him, till it is baniſhed by ſome other idea which claims a ſuperior attention. Let us next view him in a ſolitary walk. Here, if his mind be perfectly calm, he indulges his fancy with ſome fictitious ſcene, in which, by a natural propenſity, himſelf is always the hero. Whether this ſcene be of a gay or diſtreſsful kind; whether the ſituation of his imaginary affairs demands courage, compaſſion, generoſity, or gratitude, he not only feels the ſentiments which theſe virtues inſpire, but his actions uniformly correſpond with his ſenti-

ments. Viſionary ſcenes of this kind are not always of a tranſitory nature. When the ſituation of the place, and the preſent diſpoſition of the mind, are favourable, a perſon often indulges that diſpoſition till he performs a complete drama.

We ſhall now ſuppoſe our man of ſenſibility to be placed on the top of a precipice, or on the brink of a deep pit. In theſe ſituations, his mind is ſwifter than his eyes; for he is generally down himſelf before he gets a ſight of the bottom. Some people are ſo much under the influence of imagination, that they have been obſerved to approach the mouth of a pit with cautious ſteps, and, as ſoon as they have looked down a few yards, fly back with horror, till they get far beyond the poſſibility of danger. Nay, ſo powerful is the imagination, and ſo prone to verify its ideas, that, were it counterbalanced by no other principle, a man would throw himſelf headlong from a precipice, merely to gratify his preſent feelings. Farther, when a perſon ſhuts his eyes, or rather when he is in an apartment without light; if, at the ſame time, he be alone, and his mind not ruffled or occupied by any painful ideas, then Fancy lays faſt hold of him, and turns his attention to ſuch objects as ſhe pleaſes to repreſent.

Not to multiply particular ſituations which are favourable to the operations of imagination, I ſhall only add another inſtance on account of its ſingularity.

Fevers, and ſeveral other diſtempers, by ſome unaccountable influence of the body upon the mind, almoſt totally deprive us of our reaſoning powers, and pervert our ſenſes to ſuch a degree, that we either miſtake common objects, or they make little or no impreſſion upon us. But, though theſe diſtempers deprive us of judicious reflection,

flection, and of regular impreſſions from the ſenſes; yet the train of our perceptions, which is the food of the imagination, inſtead of being interrupted, proceeds with the greater rapidity. I ſhall not attempt to aſſign reaſons why particular affections of the body impair or deſtroy the act of reaſoning or reflecting: I ſhall only remark, that the ordinary train of our perceptions is, in ſome meaſure, a mere involuntary progreſſion of ideas. But reaſoning is a very complex operation, and cannot be performed without the united efforts of almoſt the whole powers of the mind. Conſidering, then, the intimate connection between our mental and corporeal faculties, is it not extremely natural, that indiſpoſitions of derangements of the body ſhould more readily deprive us of a power whoſe operations are complex and difficult, than of that faculty the exertions of which are not only involuntary, but often act in direct oppoſition both to reaſon and inclination.

From the above analyſis, the following remarks are naturally ſuggeſted: 1*ſt*, That the imagination, when not reſtrained by judgment, or checked by impreſſions from external objects, uniformly endeavours to complete any ſcene or ſet of ideas which happens to ariſe either from the ordinary train of perceptions, or from any ſtriking impreſſion received by the ſenſes; and, 2*d*, That circumſtances or ſituations which tend to weaken our reaſoning or reflective powers, or to prevent the impreſſions of external objects, give additional force and activity to the imagination.

Theſe obſervations ſhall now be applied to *dreaming*. When a perſon is juſt about to fall aſleep, he feels a ſtruggle between reaſon and imagination. The former grows gradually weaker and weaker, while the vigour and activity of the latter continually increaſe till it completely

SECT. II.

Of the final Cauſes of Dreaming.

THAT muſic, ſprightly converſation, and, in general, every exerciſe that falls under the denomination of *amuſement*, recreates the mind more effectually than mere inactivity, is a fact which admits of no controverſy. Sleep, in one ſenſe, is nothing more than a total ſuſpenſion from action. But this inactivity is not, of itſelf, ſufficient for repairing that laſſitude of organs and waſte of ſpirits, which are the never failing offspring of vigilance and exerciſe. The all-wiſe Author of our exiſtence foreſaw this defect, and hath accordingly provided the proper remedy. When aſleep, the body, it is true, is inactive; but the imagination is vigorous: And, I may, from experience, venture to affirm, that the imagination uniformly conducts us to ſcenes that are of a gay, ſerene, and amuſing nature, unleſs the mind is ſoured by cauſes which excite diſagreeable ideas, unleſs the body is ſtruggling with diſeaſe or the ſeeds of diſeaſe, unleſs our characters and diſpoſitions are tinctured with malice, or haunted with remorſe. The gay and entertaining ſcenes preſented by the imagination during ſleep are much better adapted for recreating and invigorating our faculties than mere inſenſibility.

But this final cauſe of dreaming, however obvious, may appear liable to an objection. If this reaſoning be juſt, how does it happen, it may be ſaid, that diſagreeable dreams are ſo frequent? This objection, however, inſtead of injuring the former, ſuggeſts another excellent final cauſe.

So delicate is the conſtitution of man, that, beſide the many dangerous diſtempers to which he is conſtantly expoſed, there is a great variety of little uneaſineſſes, which, though not ſo alarming as to call forth the ſympathy of friends, are nevertheleſs capable of impairing the happineſs, and fretting the lives of individuals. There are ſome diſorders which almoſt elude our feelings, but, if not timely remedied, would probably cut off our exiſtence in a few moments. It is during ſleep that we are moſt liable to theſe ſecret diſorders. But, as ſhall immediately be ſhown, the effects theſe diſorders might produce are amply provided againſt by Nature. The chief cauſes of diſagreeable dreams may be reduced to two: 1. When a perſon is actually labouring under a diſtemper, or happens to lie in a poſture which diſturbs ſome of the animal functions. 2. When any painful idea occurs in the ordinary train of perceptions. The firſt cauſe ariſes from morbid derangements in the corporeal organs, which, by a benevolent and ſalutary inſtitution of Nature, communicate painful and horrid ideas to the mind. The only difference between theſe alarming ideas, and thoſe which we feel in ſimilar circumſtances while awake, is this: In the former, although our ideas excite the ſame ſpecies of feelings; yet theſe feelings are generally referred to ſome wrong cauſe. This common miſapprehenſion of the particular part really effected is, however, productive of no bad conſequences: A furious engagement with the devil, an interview with the ghoſt of a departed friend; or, in general, ſome horrible ſcene generally comes

to

to our aid, and gives ſuch a briſk ſhock to the conſtitution as ſeldom fails, in caſes, at leaſt, where a longer continuance in ſleep would be hurtful, to rouſe us into reaſon and ſafety. Being thus ſuddenly awaked, the cauſe of our diſagreeable dream, whether it derives its origin from a hurtful poſition of the body, or any irregularity in the motions of the fluids, is now not only clearly perceived, but inſtantaneouſly removed. Perſons, therefore, who are ſo unfortunate as frequently to ſtand in need of diſagreeable dreams, inſtead of complaining of the pain and horror they occaſion, ought to regard them as kindly meſſengers ſent to relieve them from a diſeaſe, of which they would be totally ignorant, but which, without their friendly interpoſition, would probably have put a final period to his exiſtence.

The ſecond cauſe of diſagreeable dreams is derived from the particular temper or diſpoſition of the dreamer's mind previous to ſleep, or to painful ideas accidentally occurring in the ordinary train of perceptions. Here it is worthy of remark, that, during ſleep, our ideas of pleaſure and pain are greatly augmented. Pain, in particular, commonly riſes to ſuch an excruciating degree, that it rouſes us from ſleep entirely. Every man, at ſome time or other, has had an imaginary fall from a great height. But I doubt much if any perſon ever arrived at the bottom. He feels himſelf moving in the air; he even reflects on the terrible effects which muſt reſult from this fall. But, before that horrid cataſtrophe happens, he never fails to awake. It is impoſſible to determine what the conſequences would be, were the imagination allowed to complete ideas of this deſtructive nature. The effects they produce, even without being completed, are very violent. Alarmed with terror, the motions of the fluids are increaſed to a hurtful degree; cold ſweats are produced; the ears tingle; and great confuſion is perceived in the brain. Now, if the

imagination were allowed to complete ſuch ideas, theſe noxious effects would at leaſt be greatly augmented; their number too would be increaſed; and it is difficult to determine, whether a perſon who falls from a precipice in imagination would not undergo the ſame fate as he who does ſo in reality. Men who have the misfortune to be ſubject to diſagreeable dreams, learn by experience to know that they are *dreaming*. When terrified with impending danger, and even death, I have often ſaid to myſelf, 'Don't be ſo much alarmed: You have been in the ſame or in ſimilar ſituations, which 'were uniformly diſcovered to be *dreams*.' This ſpecies of dormitory reaſoning greatly alleviates the pain, and not unfrequently gives an oppoſite direction to the imagination.

Another final cauſe muſt not be omitted. It would be improper, however, to confine this cauſe ſolely to ſuch dreams as are occaſioned by ſleep; becauſe it is fully as conſpicuous, and perhaps more uſeful, in thoſe exertions of imagination, which are incidentally indulged when our ſenſes are in a ſtate of vigilance and activity. It has been remarked above, that the imagination, in ſituations favourable to its operations, uniformly leads us into ſcenes of action which give riſe to the exerciſe of the reſpectable and benevolent virtues. We have all, at one time or another, ſuppoſed ourſelves poſſeſſed of a great fortune. When indulging this ſpeculation, we never fail to imagine, that we would behave with the utmoſt condeſcenſion to our inferiors; that we would cheriſh and reward the virtuous, patroniſe the learned, ſupport the indigent; and, in a word, that we would exerciſe the moſt unbounded generoſity and beneficence. Upon a curſory view of this ſubject, ſome people are apt to think, that a propenſity to indulge reveries of this nature has its foundation in vanity, and are inclined, from that conſideration, to curb and reſtrain it as vain and preſumptuous,

preſumptuous, or, at beſt, as a frivolous mode of employing our thoughts. It merits attention, however, that nature never gives an original propenſity to the mind, but with a view to produce ſome beneficial purpoſe. But it will appear, from the following conſiderations, that the propenſity to indulge fancied ſituations, and the particular conduct prompted by theſe ſituations, is wiſely calculated to ſtrengthen and promote the virtue of individuals.

Although we ſhould never actually be poſſeſſed of the ſuppoſed great fortune; although theſe imaginary ſcenes ſhould never happen; yet, ſo various are the incidents and ſituations which may fall out in the courſe of any man's life, that ſituations and incidents, if not preciſely the ſame with thoſe he may have figured in his imagination, at leaſt reſembling them in their principal circumſtances, will undoubtedly occur. Now, when any circumſtances in life demands the exertions of benevolence, compaſſion, courage, fortitude, or reſignation, will not we be better prepared to act with dignity and propriety, than if theſe circumſtances had occurred before we had any previous intimation from our feelings how our conduct ought to be directed on ſuch intereſting occaſions? Hence the indulgence of aereal, though poſſible ſcenes of action, has an evident tendency to ſtrengthen our virtue, to enlarge our experience, to improve the vivacity of our pleaſurable feelings. Of courſe, inſtead of checking, it is our duty to encourage the reveries of fancy, provided her calls are not ſo frequent as to interrupt purſuits of a more important nature.

SECT.

SECT. III.

Every Perſon may derive Advantage from Dreams.

TO know one's ſelf is the moſt important of all knowledge, and, at the ſame time, the moſt difficult to attain. Mankind are ſo artful in diſguiſing the real motives of their actions, ſo ingenious in deceiving themſelves, ſo averſe to the diſcovery of vice or imperfection in their ſentiments or behaviour, ſo keenly engaged in the occupations of life, and ſo prone to contraſt themſelves with the moſt profligate of the ſpecies, that they generally reſt ſatisfied with their condition, and ſeldom inquire with any degree of impartiality into the real character or temperature of their minds. A more ſimple method of acquiring a knowledge of ourſelves muſt be acceptable to every perſon who thinks himſelf intereſted in the inquiry. This end, I preſume, may be accompliſhed by a moderate attention to our dreams. *Dreaming* muſt here be underſtood in the moſt common acceptation of the word; for an inquiry into the natural tendency of imagination while awake, would engage us in a ſtruggle with all the obſtructions to ſelf-knowledge formerly ſuggeſted. Let us, then, attend to thoſe particular vices which we are moſt inclined to indulge in ſleep. That vice which is moſt frequently and moſt luxuriouſly indulged in our dreams, may ſafely be eſteemed our predominant paſſion. Though

motives

motives of intereſt, decency, and the opinions of our friends, may have reſtrained us from actual gratification, and created a deluſive belief that we are no longer ſubject to its ſollicitations; yet, if the imaginary gratification conſtitutes an agreeable dream; if it is then indulged without check or remorſe, we may freely conclude, that we ſtill remain its humble votaries, and that thoſe motives which deter from actual indulgence are not the genuine motives which virtue inſpires.

This method of diſcovering our real characters, it may be ſaid, is more uncertain, and attended with greater difficulty than deliberate ſelf-examination. But, we ſhould reflect, that, during ſleep, the mind is more ingenuous, leſs inclined to palliate its real motives, leſs influenced by public opinion, and, in general, more open and candid, than when the ſenſes are awake. It is true, that, by the return of external objects, buſineſs, and intercourſe with the world, dreams are apt to eſcape from the memory, and that this circumſtance, in ſome meaſure, deprives us of the advantages which might otherwiſe reſult from them. This is, indeed, the only difficulty we have to encounter; but it is not unſurmountable. It may be removed by a few minutes labour every morning. Let any perſon who wiſhes to know his real character, as ſoon as he gets up, revolve, as accurately as he can, thoſe thoughts which made the deepeſt impreſſion upon him while he was aſleep, what ſcenes gave him pleaſure or pain, what actions he approved or diſapproved, and let him inſtantly write them in a book kept for the purpoſe. In oppoſition to a *Diary*, this book may be entitled *A Nocturnal*. The nocturnaliſt, however, muſt be careful to give a candid account of his ſleeping tranſactions, marking with accuracy the various feelings which the particular incidents excited. At firſt, perhaps, his buſineſs will be ſoon executed. But

the

the mere habit of writing, ſo ductile is the human mind, will ſoon make him both more attentive to his dreams, and increaſe his faculty of remembering them.

For the ſake of illuſtration, and to ſhow that this ſcheme is not impracticable, I ſhall ſubjoin, as a ſpecimen, the capital ſcenes of a few nights dreams which I recorded thirty years ago.

Specimen of a NOCTURNAL.

THE firſt night I found myſelf in a moſt tremendous ſituation. Alarmed by a ſudden ſhock attended with a hollow ſubterraneous noiſe, I ran out to the ſtreets of this populous city, in order to diſcover the cauſe. A dreadful proſpect preſented itſelf to view. The ground began to undulate like the waves of the ſea; ſheets of fire dazzled the eye; pales of thunder ſtunned the ears; the buildings ſplit in a thouſand directions; and, had not the native horrors of the ſcene ſoon reſtored me to reaſon, I ſhould infallibly have been cruſhed to atoms.

The ſecond night's entertainment, though not ſo alarming, was much more extravagant and ludicrous. I was for ſome time diverted with a furious diſpute between Dr MONRO and Dr WHYTT concerning the uſes of the *Deltoid Muſcle!* The combatants at length became ſo hot, that they were juſt proceeding to give the diſpute an effectual termination by the intervention of the cudgel, when I awoke; and behold it was a dream!

The third night, I found myſelf in the midſt of a brilliant company

of ladies and gentlemen. Chearfulneſs and innocence ſeemed to beam from every countenance. I was treated with the utmoſt affability and complaiſance. My heart began to exult with the moſt pleaſant emotions. The muſic ſtruck up; each took his fair partner by the hand, and a ſprightly dance immediately commenced. My ſpirits were much more elevated than I ever had experienced on any former occaſion. I moved through the various evolutions of the dance with as much eaſe and alacrity as if my body had been a mere vehicle of air. But, in the midſt of this enchanting ſcene, while ſetting to a young lady, my *breeches* fell plump to my heels! I quickly attempted to lay hold of them; but in vain. The very power of reaching forth my hand was abſtracted from me. I remained fixed as a ſtatue, and the dance was interrupted. The bluſhes of the company diſcovered how ſenſibly they felt my misfortune; but none had the courage to aſſiſt me. In ſhort, the feelings peculiar to ſuch a whimſical ſituation became at laſt ſo exquiſitely painful, that I ſhould infallibly have fainted away, had not ſleep inſtantly departed, and reſtored me to reaſon and joy.

The fourth night's employment was ſtill more ſerious and awful. I ſaw a groupe of winged angels deſcending from the ſky. One of them, who ſeemed to lead and command the reſt, had a large golden trumpet in his hand. When near the ſurface of the earth, he ſounded the inſtrument, the noiſe of which made all Nature ſhrink. He announced the arrival of the laſt day, that day when the quick and the dead are to be judged, and receive everlaſting rewards or torments, according to the merit or demerit of the deeds done by individual mortals. Aſtoniſhment and anxiety arreſted all the living. They ſtood motionleſs, and looked aghaſt. A new ſcene inſtantly appeared. I ſaw the dead riſing in myriads all around me. I particularly

cularly remarked, that, in the *Grey-friars* church-yard, *hundreds* of both ſexes puſhed one another out of the *ſame graves!* The day was ſo cold and froſty, that the terrified expectants of doom were all ſhivering. Another phaenomenon ſolicited my attention. I ſaw immenſe numbers of *leaden pipes* filled with *cold water.* Another trumpet was ſounded, and the angel proclaimed, that, inſtead of being roaſted in the *flames* of hell, the *damned* were to have their *limbs* eternally immerſed in theſe *water pipes.* Terrified, and half-petrified with this frigifying idea, I got the ſtart, and awoke. Upon examination, I found, that, by ſome accident, my limbs had been uncovered, and were exceſſively cold. This ſimple incident produced the whole ſcenery I have repreſented.

But here I muſt ſtop, leſt I ſhould diſcover more of my own character than would be conſiſtent with prudence.

SECT. IV.

Of Ominous Dreams.

THE frequent accounts of ominous dreams we meet with in hiſtory, joined to the many ſtories which are daily related, ſufficiently juſtify a few remarks upon the queſtion, Whether ſupernatural ſuggeſtions are to be expected in dreams?

To deny the poſſibility of ſupernatural ſuggeſtions either when aſleep or awake, would be both preſumptuous and abſurd. On the contrary, I can conceive a ſuperior being ſo thoroughly acquainted with the human frame, ſo perfectly ſkilled in the connection and mutual dependence which ſubſiſt between our intellect and our ſenſitive organs, as to be able, by titillating, in various modes and directions, particular combinations of nerves, or particular branches of any ſingle nerve, to excite in the mind what ideas he may think proper. I can likewiſe conceive the poſſibility of ſuggeſting any particular idea or ſpecies of ideas, by affecting the nerves in the ſame manner as theſe ideas affect them when excited by any other cauſe.

The notion of dreams, however, being frequently ſuggeſted by ſuperior beings, is founded partly in ignorance, and partly on a fond regard

regard which men are apt to indulge for every thing that relates to themſelves. If it accidentally occurs to a man's mind, which is by no means an uncommon caſe, that a friend is ſick, dead, or in circumſtances of great diſtreſs; to ſatisfy himſelf, he inquires into the ſituation of this perſon. Inſtead of finding him in the miſerable circumſtances he had fancied, he perhaps ſees him not only in health, but making merry with his companions. This deluſive and accidental impreſſion is diſcovered to be falſe in every circumſtance; and, of courſe, it is for ever concealed. But, ſuppoſing his friend to have actually been in the ſituation which he had imagined; then the caſe is entirely reverſed. He is no longer aſhamed of his fond conception. On the contrary, he doubts not that it proceeded from a ſupernatural cauſe; and hence, to gratify his vanity, he tells it on all occaſions, in order to inſinuate his uncommon connection with heavenly powers.

Allowing that events and ſituations which mankind repreſent to themſelves, by means of the imagination, do ſometimes actually happen; yet this circumſtance is not wonderful. Conſidering the activity and wanderings of the imagination, it is ſurpriſing that ſo few examples of this kind occur. We never hear of the numberleſs inſtances where there is no coincidence between the events and the previous imagination. But, whenever they chance, even in ſlight relations, to coincide, which is extremely ſeldom, they are noiſed abroad with eager induſtry.

Theſe obſervations apply to dreaming with accumulated force. In ſleep, the imagination is much more active, and the time ſpent in fanciful repreſentations is vaſtly greater than when we are awake. A greater variety of incidents, of courſe, occur in dreaming. Is it not, then,

then, extremely ſtrange, conſidering the natural diſpoſition of the mind to gueſs at future events, that a man ſhould continue to dream, both day and night, for fifty or ſixty years together, without, perhaps, being able to recollect a ſingle inſtance of his foreſeeing any particular event?

Upon the whole, were the examples of ominous dreams more frequent, and better authenticated than they generally are, they might with great propriety be aſcribed to cauſes merely fortuitous, and totally independent of any ſupernatural impulſe or ſuggeſtion.

SECT.

SECT. V.

Of the Second Sight, or a Prophetic Power.

THE obſervations made in the two foregoing ſections may, with much propriety, be applied to what is called the *Second Sight.* The perſons ſaid to be poſſeſſed of this faculty of ſeeing actual repreſentations, or pictures of future events, are, in Scotland, chiefly confined to the Highlands and weſtern iſlands. Like many other prophets, both ancient and modern, our profeſſors of *Second Sight* are illiterate, vulgar, and viſionary beings. Their pretenſions, however, are not mercenary. They neither aſk nor receive money for their ſuppoſed predictions. In this, as well as in all other countries, while the people remain in a ſtate little removed from abſolute barbariſm, ſuperſtition ſpontaneouſly ariſes from a thouſand cauſes; poverty, idleneſs, high and rugged mountains, bleak heaths, a ſterile ſoil, naturally excite gloomy and frightful ideas in uninformed minds. Our Highland *ſeers* are exactly in this melancholy ſituation. Their predictions, or rather reveries, accordingly, are all expreſſive of deaths, and other human calamities.

About thirty years ago, a moſt abſurd publication appeared at Edinburgh under the title of *A Treatiſe on Second Sight*, in which more

than a hundred inſtances are related, almoſt the whole of them portending diſaſtrous events. Were it not with a view to baniſh, as far as I can, a notion ſo diſgraceful to our country, and ſo humiliating to human nature, I ſhould not have deigned to fully my book with the following ſpecimen: 'DONALD MACKINNON, an honeſt tenant in *Haliſtra* in *Waterniſh*, relates, that, in harveſt 1760, in 'the duſk of the evening, as he was binding and putting together 'corn, on a ſudden he ſaw a neighbour of his foremoſt, and followed by a pretty throng gathering of people, carrying a corpſe 'directly through a ſtanding corn-field of his own, which he was 'not well-pleaſed at; however, through *fear* that it might be a *viſion*, 'he did not chuſe to challenge his neighbour. He told what he had 'ſeen to his wife and family when he came home, ſaying, If it was 'a *viſion*, it would undoubtedly be verified ere long; and, to ſatisfy 'his mind concerning what he had ſeen, went early next morning 'to view the ſtanding corn, to ſee if any of it was trode down, but 'not one ſtalk. About the ſame time next year, he ſaw his neighbour, the company and corpſe, in reality, coming through the ſame 'field from *Griſhirniſh*, to bury it at the church-yard of *Trumpan* *.'

This ſimple example comprehends the ſpirit and tendency of the whole book; for every ſtory it contains is equally ridiculous.

But here we muſt pauſe: The learned and ingenious Dr SAMUEL JOHNSON, who, ſome years ago, honoured Scotland, and even its Hebrides, with a viſit, from ſimilar ſtories, was credulous enough to believe in the *ſecond ſight*. The Doctor's definition of this ideal faculty is curious. 'The *ſecond ſight*,' ſays he, 'is an impreſſion 'made either by the *mind* upon the *eye*, or by the *eye* upon the *mind*, 'by

* Treatiſe on Second Sight, p. 159.

'by which things *diſtant* or *future* are perceived, and *ſeen* as if they 'were *preſent* *.' To comprehend this definition would require a man to be poſſeſſed of both the *firſt* and *ſecond ſights!*

To do juſtice to the Doctor, however, though he execrates, with a ſuperſtitious meanneſs, that form of church-government called *Preſbyterianiſm*, and prefers to it even *Papal deſpotiſm;* yet, upon this ſubject, he involuntarily and awkwardly makes a very great and a very juſt encomium on the good ſenſe and general character of our Highland clergymen. 'The iſlanders,' he remarks, 'of all degrees, 'whether of *rank* or *underſtanding*, admit of it (*i. e.* the ſecond 'ſight) except the *miniſters*, who univerſally deny it, and are ſuſ-'pected to deny it, in conſequence of a *ſyſtem*, againſt *conviction*. 'One of them honeſtly told me, that he came to Sky with a *reſo-'lution* not to believe it †.'

It is not incurious to remark, that men, even poſſeſſed of diſtinguiſhed parts, when urging any favourite topic, frequently contradict themſelves, and, from abſolute nonſenſe, inadvertently recur to ſenſe. Of this, the following lines of Dr JOHNSON afford a ſtriking example: 'Strong reaſons,' ſays the Doctor, 'for incredulity will 'readily occur. This faculty of *ſeeing* things out of *ſight* is local, 'and commonly *uſeleſs*. It is a breach of the common order of 'things, without any *viſible* reaſon or *perceptible* benefit. It is 'aſcribed only to a people very little enlightened; and among them, 'for the moſt part, to the *mean* and the *ignorant* ‡.' The celebrated author of theſe juſt obſervations was a firm believer in the exiſtence of *ſecond ſight!* 'The *foreſight* of the *ſeers*,' ſays Dr JOHNSON,

* Johnſon's Journey to the Weſtern Iſlands of Scotland, p. 152. Edin. edit. 1792.

† Ibid. p. 154. ‡ Id. ibid.

'is not always *preſcience*: They are impreſſed with images, of which 'the event only ſhews the meaning *.'

Dr JOHNSON admits what is well known to all our Highlanders, that the perſons ſaid to poſſeſs this faculty are, in general, ignorant, dozing, indolent creatures, who never work, ſpeak ſeldom, and ſpend whole days gaping and gazing ſtraight forward, without altering their poſition, or taking the ſmalleſt notice of what paſſes around them. The whole employment of their minds, it ſhould appear, is occupied with viſionary phantoms: It is not ſurpriſing, therefore, that they ſhould, at one time or other, ſtumble upon ſcenes or events, to which ſomething ſimilar afterward happens.

In the year 1779, the Reverend Mr DONALD M'NICOL publiſhed *Remarks* on Dr JOHNSON's Journey to the Hebrides, a book written with much ſpirit, good ſenſe, and acuteneſs of reaſoning. Being born and bred in the Highlands, Mr M'NICOL muſt be allowed to have had better opportunities of knowing the diſpoſitions, manners, and faith of his own countrymen, than a prejudiced Engliſhman, who was ſo *ſhort-ſighted*, that he could not *ſee* a *tree* in Scotland, though he paſſed many extenſive woods and groves, both natural and planted. To ſhow the light in which Mr M'NICOL viewed the narrative of the Doctor's Journey, I ſhall tranſcribe a few lines on the ſubject of *ſecond ſight*.

'In page 248. our traveller,' Mr M'NICOL remarks, 'comes to 'examine the queſtion of the *ſecond ſight*; and it is truly ſurpriſing 'to ſee with what a *credulous weakneſs* he endeavours to defend ſo '*viſionary* an opinion. Other things, which are believed by every 'man.

* Johnſon's Journey, &c. p. 156.

'man in the country, which are probable in themſelves, and are 'ſupported by all the evidence that a reaſonable man could expect, 'the Doctor often *rejects*; but *this* point, *abſurd* in itſelf, uncoun-'tenanced by any *decent* authority, and to which only a few of the '*moſt ignorant vulgar* give the *leaſt faith*, he maintains with a '*zeal* which ſhews him to be *aſhamed* of nothing but *thinking* like '*other* men *.'

Even on the ſuppoſition that ſuch a faculty as *ſecond ſight* exiſted, the queſtion may be aſked, *Cui bono?* For what end ſhould men be endowed with a power, which can only ſerve to torment them with unneceſſary alarms? Though we were enabled to ſee impending calamities, but deprived, as we are, of the capacity of preventing them, inſtead of a happy attainment, it would render us perpetually miſerable. The evils of human life are already ſufficiently numerous; and Nature, for wiſe purpoſes, has hid futurity from our eyes.

Like many other ſuperſtitions, that of *ſecond ſight* muſt vaniſh in proportion as knowledge and civilization advance; and it is a pleaſure to learn, that it is now nearly extinguiſhed even in the Weſtern Iſlands of Scotland.

SECT.

* M'Nicol's Remarks on Dr Samuel Johnſon's Journey to the Hebrides, p. 191.

SECT. VI.

Of Somnambuliſts—Hiſtory of Two who fell under the Author's Obſervation.

ANOTHER remarkable phenomenon, which is ſometimes exhibited in ſleep, merits attention.—Some people, during ſleep, retain the faculties of ſeeing, hearing, ſpeaking, walking, laughing, crying, and, in general, doing almoſt every thing they are accuſtomed to perform when they are awake. Near thirty years ago, I had an opportunity of examining a ſtriking example of *ſomnambuliſm*. Within a mile of Edinburgh, I happened to reſide ſome time in a farmer's houſe. Mr BAIRD, my landlord, had a ſervant maid, whoſe name was *SARAH*. I was not long there, when I learned from the family, that SARAH, particularly after receiving an affront, or being angered, was accuſtomed to riſe in her ſleep, to go out, and to walk about the fields. My curioſity was excited; and I begged to be informed the firſt time that SARAH ſhould riſe in her ſleep. A few nights afterward, one of Mr BAIRD's ſons awaked me, and told me that SARAH had got out of bed. I immediately haſtened to the apartment where ſhe ſlept. When I arrived, Mr and Mrs BAIRD, one of their ſons, and a ſervant maid, SARAH's companion, were preſent. SARAH was in the midſt of them. She was ſlightly and careleſsly clothed. Her neighbour ſervant perſuaded her

her to ſit down. I took my ſeat by her. We began immediately to converſe. She anſwered any queſtions that were put to her pretty diſtinctly; but ſhe always miſtook the perſon who ſpoke for ſome other, which gave us an opportunity of aſſuming any character within the circle of her acquaintance. I knew that one of the farmer's ſervants, whoſe name was JOHN PORTEOUS, was a lover of her's; and, therefore, I addreſſed her in the ſtyle which I ſuppoſed JOHN might ſometimes have done. From that moment ſhe began to ſcold me, upbraided me with ſeveral breaches of promiſe to marry her, and deſired me, in the moſt peremptory manner, never again to ſpeak to her on that topic. The converſation was accordingly changed. I talked of her miſtreſs, who was in the room, becauſe I knew that they had occaſional quarrels. Till now, I ſuſpected that the whole was a trick, but for what purpoſe I could not diſcover. SARAH, however, abuſed Mrs BAIRD in the harſheſt terms. She ſaid, but the other day, ſhe had been accuſed of ſtealing and drinking ſome bottles of ale; that her miſtreſs was ſuſpicious, cruel, and narrow-minded. As the miſtreſs of the houſe was preſent, when theſe and other opprobrious terms were uſed, I began to doubt my preconceived notion of impoſture; and, therefore, changed the object of my experiments and inquiries. I examined her countenance, and found, that her eyes, though open, wild, and ſtaring, were not abſolutely fixed. I took a pin and repeatedly pricked her arm; but not a muſcle moved, not a ſymptom of pain was diſcoverable. At laſt, ſhe became impatient to get out, and made ſeveral attempts to eſcape by the door; but that was prevented by the domeſtics. Perceiving her inability to force the door, ſhe made a ſudden ſpring at the window, and endeavoured to throw herſelf over, which would have been fatal to her. To remove every ſuſpicion of impoſture, I deſired the people, with proper precautions to prevent harm, to try if ſhe would really precipitate

pitate herſelf from the window. A ſeemingly free acceſs was left for her eſcape, which ſhe perceived, and inſtantly darted with ſuch force and agility, that more than one half of her body was projected before her friends were aware. They, however, laid hold of her, and prevented the dreadful cataſtrophe. She was again prevailed upon, though with much reluctance, to ſit down. She ſoon reſumed her former calmneſs, and freely anſwered ſuch queſtions as were put to her. This ſcene continued for more than an hour. I was perfectly convinced, notwithſtanding my original ſuſpicions, that the woman was actuated by ſtrong and natural impulſes, and not by any deſign to deceive. I aſked if any of the attendants knew how to awaken her. A female ſervant replied, that ſhe did. She immediately, to my aſtoniſhment, laid hold of SARAH's wreſt, forcibly ſqueezed and rubbed the projecting bones, calling out, at the ſame time, SARAH, SARAH! By this operation SARAH awoke. She ſtared with amazement, looked around, and aſked, how ſo many people came to be in her apartment at ſo unſeaſonable an hour? After ſhe was completely awake, I aſked her, what was the cauſe of her reſtleſs and violent agitation? She replied, that ſhe had been dreaming that ſhe was purſued by a furious *bull*, who was every moment on the point of goring her.

A pretty ſimilar example afterwards occurred. Mr THOMAS PARKINSON, then a ſtudent of medicine in the univerſity of Edinburgh, was accuſtomed to talk and to anſwer queſtions in his ſleep. This fact was known to his companions. To amuſe ourſelves, two of us went gently into his chamber while he was aſleep. We knew that he was in love with a young lady in Yorkſhire, the place of his nativity. We whiſpered her name repeatedly in his ear. He ſoon began to toſs about his hands, and to ſpeak incoherently. He gra-

dually became more calm and recollected. His imagination took the direction we intended. He thought he was ſtationed under the lady's window, and repeatedly upbraided her for not appearing and ſpeaking to him as ſhe had ſo often done on former occaſions. At laſt, he became impatient, ſtarted up, laid hold of books, ſhoes, and every thing he could eaſily graſp. Thinking his miſtreſs was aſleep, he threw theſe articles againſt the oppoſite wall of his chamber. By what he ſaid, we learnt, that his imaginary ſcene lay in a ſtreet, and that he was darting the books and ſhoes at the lady's window, in order to awake her. She, however, did not appear; and, after tiring himſelf with frequent exertions, he went quietly into bed without wakening. His eyes were nearly ſhut; and, although he freely converſed with us, did not ſeem to perceive that any perſon was preſent with him. Next day, we told him what had happened; but he ſaid, that he had only a faint recollection of dreaming about his miſtreſs.

In the French Encyclopedie, under the word *Noctambule*, we have an account of a ſtudent of divinity in the univerſity of Bourdeaux, who was accuſtomed to riſe in his ſleep, and to read and write without the uſe of his eyes. The fact is atteſted by the Archbiſhop of BOURDEAUX, who thought it a phaenomenon worthy of his attention. Leſt he ſhould have been deceived by the young man, he interpoſed an obſtacle between his eyes and the paper on which he was writing, or reading. But he read and wrote in the ſame manner, and with equal accuracy, as if no ſuch obſtacle had exiſted.*.

A recent and authentic occount of a ſleep-walker has been publiſhed

* This fact is likewiſe related by the learned and ingenious Lord MONBODDO, in his *Antient Metaphyſics*, vol. I. p. 159.

ed on the continent, and now tranſlated into Engliſh under the title of *A true and ſurpriſing Account of a Natural Sleep-Walker, read before the Philoſophical Society of Lauſanne in Switzerland, on the 6th of February* 1788. This ſleep-walker's name is DEVAUD. At the time the following experiments and obſervations were made upon him under the direction of the ſociety, he was between thirteen and fourteen years of age. His conſtitution was weakly, and his nerves extremely irritable. The ſociety appointed three of its members, Dr. LEVADE and Meſſrs REYNIER and VAN BERCHEM, to make and report their obſervations on the ſleeping exertions and behaviour of this young man. Theſe gentlemen faithfully executed the injunctions they had received, and reported the reſults of the experiments they had made, and whatever authentic relations they procured from others.

His ordinary ſleep, which is ſeldom tranquil, when about to be ſeized with a fit of Somnambuliſm, is uncommonly diſturbed. While in this ſtate, he is affected with involuntary motions; his heart palpitates; his tongue faulters; and he alternately riſes up and lies down. On one of theſe occaſions, the gentlemen remarked, that he ſoon articulated more diſtinctly, roſe ſuddenly, and acted agreeably to the motives of the dream which then occupied his imagination. When too quickly rouſed by a violent noiſe, or other cauſes, he is ſometimes ſeized with convulſions. After a paroxyſm, he complains of being fatigued, and, on ſome occaſions, is affected with ſickneſs and vomiting. At firſt, when he awoke, and found himſelf dreſſed, and in the midſt of ſeveral perſons, his ſurpriſe was great. But, after the habit of ſomnambuliſm had continued for ſome time, recollection of ſimilar events, as formerly remarked with regard to diſagreeable dreams, gradually diminiſhed his ſurpriſe. The ideas of a boy at

ſchool muſt neceſſarily be few and ſimple ; and, of courſe, his dreams can admit of little variation. His daily verſions, cyphering, the church ſpires, and bells, but chiefly tales of ghoſts and hobgobblins, were the principal objects of his nightly viſions. When his mind was impreſſed with particular ideas before going to ſleep, which is nothing uncommon, theſe ideas frequently conſtituted or gave a direction to his dreams.

The gentlemen examinators mention ſome effects of electricity and magnetiſm upon our ſomnambuliſt. But, in the tranſlation, (for I have not ſeen the original), the facts are obſcure, unintereſting, and ſometimes even contradictory ; and, therefore, ſhall be paſſed over in ſilence.

With regard to the young man's *ſenſes*, we are told, that iron, braſs, and ſilver, applied to his noſtrils, made no impreſſion ; but that a bit of cedar, as well as the fingers of another perſon, gave him ſome uneaſineſs. In one of his paroxyſms, they preſented to him a piece of bread, and ſome wormwood wine. The latter he immediately diſtinguiſhed by the ſmell, and ſaid, *This is not our table wine.* He was afterwards furniſhed with a little common wine, which he inſtantly drank. As he was walking along, wrapt up in ſome dream, two of the gentlemen put themſelves in the way he was directing his courſe ; but he paſſed between them, without being offended, or ſeeming to be conſcious of the preſence of any obſtacle. He dreſſed himſelf with great propriety in a room which was perfectly dark : He ſelected his own clothes from a number of others which had been purpoſely jumbled together, and complained that ſome of his companions had made ſport of him. When his eyes were perfectly ſhut, he touched, in preſence of the gentlemen, ſeveral objects, and readily diſtinguiſhed

diſtinguiſhed thoſe which he had ſeen before from thoſe he had not. A book that did not belong to him was put into a drawer where he kept his papers: When he felt the book, he expreſſed great anxiety leſt he ſhould be ſuſpected of theft.

His ſenſe of *hearing* while aſleep was very accurate. In one of his reveries, he fancied that he was ringing the bell of St Martin's church, and performed all the neceſſary motions. After this operation was finiſhed, he was aſked how long he had rung? he anſwered, *four minutes.* He took a candle with a deſign to light it: But one of the company, not perceiving that he held it in his hand, remarked in a low voice, that *he had forgot his candle. Of what uſe are your eyes,* ſaid DEVAUD, *if you don't ſee it?*

When our ſleep-walker wiſhes to *ſee* any object, he makes an effort to open his eye-lids, which he does very imperfectly, and with much difficulty. The ball of the eye, on theſe occaſions, appears to be fixed and languid. On this ſubject Mr N. —— makes the following remarks: 'When I accompanied the ſleep-walker, I remained 'always behind him, or by his ſide; and very often without touch-'ing him. I put my face under his, to obſerve if his eyes were 'really ſhut; and I found them always cloſed. However, after 'walking ſome ſteps in this poſture, he uſually diſcovered me by the 'noiſe of my feet, and went a little aſide. When I ſtill followed 'him, he raiſed his head, drew up his eye-brows with difficulty, and 'made an effort to open his eyes. This he could do only by halves, 'yet ſo as to perceive me: *Don't ſtand in my way,* he ſaid, and held 'on at the ſame pace. As the moon ſhone, I had an opportunity of 'examining his eyes very narrowly, and was convinced, that the dif-'ficulty he experienced in opening them proceeded from the inaction

'of

'of the upper eye-lid, which he could not move without firſt raiſing 'the eye-brows *.'

The gentlemen examinators made many other experiments upon this ſleep-walker. But as, in general, they are of a ſimilar nature with thoſe already related, it is unneceſſary to give more examples.

Upon this curious ſubject, I muſt mention a ſingular converſation which happened in my houſe many years ago. The company conſiſted of the learned and ingenious Dr REID, at preſent Profeſſor of Morals in the Univerſity of Glaſgow, and the no leſs learned and ingenious Dr BLACKLOCK, both well known in the literary world. Dr REID, among many other queſtions, aſked Dr BLACKLOCK, if he had any idea of light? Dr BLACKLOCK replied, that he had not, being deprived of ſight ſo early as the ſecond year of his exiſtence. Dr REID then aſked him, if there was any difference between his ideas of perſons and objects when he *dreamed*, and thoſe which were excited while awake? Dr BLACKLOCK replied, that the difference was great; that he doubted whether he could communicate this difference in ſuch a manner as to be underſtood; but that he would make the attempt. His anxiety to pleaſe and inform made his explanation at firſt ſo obſcure and perplexed, that it could not be underſtood. This perplexity he perceived; retracted what he had ſaid as unintelligible; and, with ſome degree of exultation, exclaimed, 'Now I have it.' He then told us, that, when awake, he could diſtinguiſh perſons three ways: The moſt perfect of which was that of hearing them ſpeak; but he could alſo recogniſe an acquaintance by feeling his head and ſhoulders. The third mode of diſtinction was by attending, without the aid of ſpeech, to the ſound and manner of breathing.

* See the above mentioned Pamphlet, p. 25.

breathing. He then proceeded, and told us, that, in ſleep, the objects which preſented themſelves to his imagination were more vivid, and that without the intervention of any of the three modes mentioned above, he had diſtinct perceptions of *diſtant objects* both animated and inanimated. Being aſked by what means he thought theſe impreſſions were conveyed to him, he replied, that he imagined his body was united to theirs by a kind of *diſtant contact*, which was effected by the inſtrumentality of *threads* or *ſtrings* which proceeded from their bodies to his own; and that mutual ideas were conveyed by *vibrations* of theſe *ſtrings*. The Doctor could not come nearer to the point; for, though what he ſaid did not amount to ideas excited by actual *viſion*, yet the approach was aſtoniſhingly near.

SECT.

SECT. VII.

Some unconnected Facts concerning Sleep and Dreaming.

MAN is not the only animal that dreams. From many facts, and a very extenſive analogy, it is almoſt certain, that every animal dreams more or leſs. Dogs bark in their ſleep. This barking is indeed feeble; but the ſounds peculiar to the chace, to anger, to deſire, to complaint, &c. are eaſily diſtinguiſhable. I have often regretted, that ingenious men, when ſupporting favourite theories, ſhould ſo frequently relate the groſſeſt abſurdities. The celebrated M. DE BUFFON, *in his Diſſertation on the Nature of Animals*, gravely tells us, 'that *idiots*, whoſe *minds* are totally *inactive*, *dream* 'like other men: *Dreams*, therefore, are produced independent of 'mind. Brute animals, though they have *no mind*, not only *dream*, 'but I am tempted to think, that all *dreams* are independent of 'mind*.' A moſt brilliant ſentiment, and moſt *logically* expreſſed! Dreaming, thinking, or even feeling, without the intervention of *mind*, involve ideas beyond the limits of human underſtanding.

When about to ſleep, moſt animals chuſe a particular poſition of body. The camel places his head between his fore feet; the monkey,

* Buffon, vol. 3. p. 256. Tranſlat.

like man, lies on his ſide; moſt birds ſleep with their head under one wing. The pſittacus galgulus, a ſpecies of parrot, hangs by one foot on the branch of a tree; and ſome ſpiders, and other inſects, ſuſpend themſelves by their fore legs.

A horſe, when in good health, lies not above two or three hours at a time, and ſeldom ſleeps more than three or four hours in the twenty-four. Some horſes never lie down, but ſleep ſtanding; and even thoſe which are accuſtomed to lie down, ſometimes ſleep on their feet. The aſs ſleeps ſtill leſs than the horſe; and, for that purpoſe, never lies down, except after great fatigue *. The heavieſt and moſt ſluggiſh animals do not ſleep the longeſt or the moſt profoundly. The ſlumbers of the ox are light and ſhort. He is rouſed by the ſlighteſt noiſe: He generally lies on the left ſide; and the leſt kidney is always larger and fatter than the right †. The ſleep of cats, is, in general, light; but ſometimes they have been ſeen ſleeping with much more profoundneſs than moſt other animals ‡. The ſow-kind ſleep longer than moſt quadrupeds.

Man, perhaps, ſleeps longer than any of the larger animals. Beſide the natural waſte occaſioned by exerciſe and labour, the perpetual activity of his mind fatigues the body, and renders a greater quantity of ſleep neceſſary.

Badgers ſleep the whole night and three-fourths of the day; yet, like the marmottes or dormice, they are ſubject to a lethargic or benumbed ſtate during winter. This great quantity of ſleep, though they eat little, makes them very fat; for this reaſon, they are enabled to

* Buffon, ibid. p. 416.

† Ibid. p. 442.

‡ Ibid. vol. 4. p. 55.

to endure hunger a long time, and often remain in their holes three or four days together, without receiving the ſmalleſt nouriſhment.

Another affection, peculiar to the ſtate of ſleep, is the *incubus*, or *night-mare*. This affection, in general, is produced by indigeſtion, and by eating too much, and particularly of fleſh-meat, at ſupper. It is likewiſe ſometimes occaſioned by lying, while aſleep, on the back, and the bed-clothes, of courſe, preſſing on the breaſt. From whatever cauſe the *night-mare* proceeds, it is uniformly accompanied with great terror, and a ſenſe of ſuffocation; for by the preſſure of wind, or ſome other cauſe, upon the lungs, reſpiration is either prevented, or very much impeded. The ſenſations excited by this cauſe are always of the moſt excruciating nature. The imagination preſents the ideas of ſome ſpectre or demon lying on the breaſt, or of ſituations which neceſſarily infer ſuffocation and death. When the ſufferer attempts to throw off the load, or to eſcape from the impending danger, he diſcovers a total inability to move any of his members. This circumſtance augments his terror and his pain, and, at laſt, baniſhes ſleep. When he awakes, the imaginary weight, or cauſe of terror, is removed, and the power of motion is reſtored. But the palpitations of the heart, and the confuſion of the brain, remain for ſome time, till the paroxyſm is completely finiſhed; and then the whole is recogniſed to have been only an imaginary deluſion *.

* is deſirous of ſeeing a more full diſcuſſion of this ſubject, he may conſult Dr [redacted], *De Anima Brutorum*, a learned and ingenious work, publiſhed in the year 1672.

CHAPTER VI.

Of thoſe Animals who ſleep, or continue in a torpid ſtate, during Winter.

THAT ſtate of animal exiſtence denominated *ſleep*, may be conſidered as an univerſal affection. Almoſt every animated being is ſubject to its dominion. As formerly remarked, ſome animals require more and others leſs ſleep, according to their conſtitutions and other circumſtances. But there are many animals who continue to ſleep during the whole months of winter. While in this condition, they neither move nor take food; and yet they revive on the approach of ſummer. Of theſe a few examples ſhall be laid before the reader.

It is well known, that many quadrupeds and inſects remain in a torpid ſtate during winter; but it is a remarkable fact, that not a ſingle ſpecies of birds, except the ſwallow and cuckoo, have ever been ſuppoſed to ſleep during the winter months. With regard to the ſwallow-tribe, I muſt refer the reader to my firſt volume, where this ſubject is amply diſcuſſed *.

The

* Philoſ. of Nat. Hiſt. vol. 1. p. 473.

The land-tortoiſe is a very long-lived animal. Mr WHITE * gives an account of one that lived more than forty years in a little walled court. During that period, it regularly retired under ground about the middle of November, and came forth again about the middle of April. On its firſt appearance in the ſpring, it diſcovered very little inclination for food; but, in the height of ſummer, it was very voracious. As the ſummer declined, its appetite grew leſs; and, during autumn, it hardly ate any thing. In the month of April 1780, Mr WHITE informs us, 'a moiſt and warm afternoon, with 'the thermometer at 50, brought forth troops of *ſhell-ſnails*; and, 'at the ſame juncture, the *tortoiſe* heaved up the mould and put out 'its head; and the next morning came forth, as it were raiſed from 'the dead, and walked about till four in the afternoon †.'

The *Alpine marmots*, on the approach of winter, retire to their ſubterranean abodes, the entrances to which they ſhut up with earth or clay. In this ſituation they continue to be plump for three months; but afterwards they gradually decay, and are extremely emaciated at the end of winter. When diſcovered in their retreats, they are found to be rolled up in the form of a ball, covered with hay; and they are carried off by the hunters in a ſtate ſo torpid, that they may be killed without ſhowing the ſmalleſt ſymptom of pain. They may be revived by a gradual and gentle heat; and thoſe which are tamed and fed in houſes never become torpid, but are as lively and active in the winter as in the ſummer. Their holes are deep, and they live together in numbers. The fatteſt are ſelected for eating, and the young ones are preſerved for taming ‡.

The

* White's Nat. Hiſt. of Selborne, p. 135, &c.

† Ibid. p. 262.

‡ Buffon, vol. 4. p. 344. Tranſlat.

The different ſpecies of *bats* ſleep during the winter months. The final cauſe of their torpidity is obvious. In that ſeaſon, there are no moths, or other flying inſects, the chief food of bats. Hence, if Nature did not confer this faculty, or rather inactivity, upon them, a ſingle winter would annihilate the ſpecies. 'The prevailing no-'tion,' ſays the Honourable DAINES BARRINGTON, 'that they 'hang always in cluſters touching each other, is not true, as this 'depends entirely upon their having a proper opportunity of adher-'ing to the place from which they are ſuſpended; they ſometimes, 'therefore, are in contact, and often at conſiderable diſtances, but 'always fix themſelves by both their feet *.' It is a well known fact, that bats, whilſt in a torpid ſtate, evacuate their dung, and, of courſe, both the circulation of the blood, and a certain degree of muſcular action, continue to be exerted. Mr CORNISH applied a thermometer to the body of a bat when perfectly torpid; the liquor ſtood at 36, and the heart beat 60 times in a minute. When awakened ſo much that the ſame animal could fly a little, the thermometer was again applied, the liquor roſe to 38, and the heart beat 100 times in a minute.

Some animals who ſleep during winter, may be kept awake by ſupplying them with warmth and proper food. Of this kind are the bear, the viper, and the common houſe-fly, which, under theſe circumſtances, continue alert and cheerful through the whole year.

The *fat ſquirrel*, a quadruped about ſix inches in length, the *ſciurus glis* of LINNÆUS, remains in a torpid ſtate during winter. Its internal heat exceeds not that of the air. When the heat of the air is ten degrees above the freezing point, the temperature of the *fat ſquirrel*,

* Daines Barrington's Miſcellanies, p. 166.

ſquirrel, the *dormouſe*, and the *garden ſquirrel*, is preciſely the ſame, as M. de BUFFON diſcovered by plunging the ball of a thermometer into their bodies. We cannot, therefore, be ſurpriſed that theſe animals, whoſe natural heat is ſo inconſiderable, ſhould fall into a benumbed ſtate, whenever their internal heat is not augmented by that of the external air, which uniformly happens when the liquor in the thermometer does not riſe ten or eleven degrees above the freezing point. Cold is the true cauſe of the torpid ſtate of what are called the *ſleeping* animals. This torpid ſtate continues as long as the cauſe by which it is produced, and ceaſes with the cold. A few degrees above ten or eleven is ſufficient to revive them; and, if kept in a warm place during winter, they are never benumbed, but go about, and eat and ſleep like other animals. When they feel uncommonly chilled, in order to expoſe leſs ſurface to the air, and to preſerve their natural warmth, they roll themſelves up in the form of a ball. It is in this form that they are found, during winter, in hollow trees, and in holes of walls expoſed to the ſouth. In theſe holes they lie upon collections of moſs and leaves, without the ſmalleſt motion; and, though toſſed about, they neither extend themſelves, nor diſcover the leaſt ſymptom of life. From this dormant condition nothing can rouſe them but the application of a gentle and gradual heat; for, when ſuddenly placed near a fire, they uniformly die. Though, in this ſtate, they are totally deprived of motion, though their eyes are ſhut, and the animals ſeem to have loſt every ſpecies of ſenſation; yet they feel any acute pain. When burned or wounded, they contract their bodies, and utter low and repeated cries. Their ſenſibility, therefore, and the action of the heart and lungs, ſtill ſubſiſt. It is obvious, however, that theſe vital motions are but feeble. The circulation of the blood, it is probable, proceeds in the large veſſels only; for the reſpiration is ſlow and feeble, the

ſecretions

ſecretions are inconſiderable, and no excrements are voided. In long and rigorous winters, they ſometimes die in their holes. They periſh not, it ſhould appear, by the loſs of ſubſtance from perſpiration; for in autumn they are exceedingly fat; and equally ſo when they revive in the ſpring. As cold is the chief, if not the only cauſe of their torpor, and as they do not fall into this ſtate till the temperature of the air is below ten or eleven degrees, they frequently revive during the winter; for, in that ſeaſon, many days often occur when the liquor in the thermometer riſes to twelve, thirteen, fourteen, and even higher degrees above the freezing point. In weather of this kind, the dormice either come out of their abodes in queſt of food, or eat part of what they had amaſſed in autumn.

The *Hamſters*, or German marmots, on the approach of winter, retire into their ſubterraneous abodes, where they remain in perfect tranquillity, and feed on their proviſions till the froſt becomes ſevere, when they ſink into a torpid ſtate. During this period of their exiſtence, if the holes be opened, the hamſter is found lying on a bed of ſtraw. His head is bended under his belly between the two forelegs, and thoſe behind reſt upon his muzzle. The eyes are ſhut; and, when the eye-lids are forced open, they inſtantly cloſe again. His members are ſtiff, like thoſe of a dead animal, and the whole body feels as cold as ice. Neither reſpiration, nor any other ſign of life, can be perceived. When diſſected in this ſituation, the heart alternately contracts and dilates. Theſe movements, however, are ſo ſlow, that the pulſations do not exceed fifteen in a minute; though, when the animal is awake, the heart, in the ſame time, beats an hundred and fifty ſtrokes. The fat ſeems to be coagulated. The inteſtines are equally cold with the external parts of the body, and, upon the application of ſpirit of wine, or oil of vitriol, diſcover not the

ſmalleſt degree of irritability. During this operation, the animal ſeems to have very little feeling. As if he wanted to reſpire, he ſometimes opens his mouth. But his torpor is too powerful to admit of his awaking entirely.

This lethargy of the hamſter has been aſcribed ſolely to the effects of a certain degree of cold, which may be true with regard to the bats and dormice; but, in order to render the hamſter torpid, beſide cold, he muſt likewiſe be excluded from all communication with the external air: For, when ſhut up in a cage, filled with earth and ſtraw, and expoſed to a degree of cold ſufficient to freeze water, the hamſter never becomes torpid. When the cage, however, is ſunk four or five feet under ground, and ſecured againſt the acceſs of air, in a few days, he is equally torpid as if he had been in his own burrow. If the cage is brought up to the ſurface, the hamſter, in two or three hours, awakes, and reſumes his torpid ſtate when again put under the earth. When paſſing from a torpid to an active ſtate, the hamſter firſt loſes the rigidity of his members, and then makes profound reſpirations, but at long intervals. His legs begin to move, he opens his mouth, and utters rattling and diſagreeable ſounds. After continuing theſe operations for ſome time, he opens his eyes, and endeavours to raiſe himſelf on his legs. All theſe movements, however, are ſtill unſteady and reeling, like that of a man intoxicated with liquor. But he reiterates his efforts, till he acquires the faculty of ſtanding on his legs. He remains, for ſome time, fixed in that attitude, as if he meant to reconnoitre, and to repoſe himſelf after his fatigue. He now gradually begins to walk, to eat, and to act in his uſual manner. According to the temperature of the air, this paſſage, from a torpid to an active ſtate, requires more or leſs time. In a cold air, he is generally more than two hours before he completely awakes;

awakes; but, in a more temperate air, he accompliſhes this purpoſe in leſs than one hour. It is probable that this change is produced imperceptibly when the animal remains undiſturbed in his hole, and that he feels none of the inconveniencies which ariſe from a forced and ſudden reviviſcence *.

The *Hedgehog* is one of thoſe quadrupeds which lie in a dormant ſtate during the winter months. Some years ago, that ingenious, learned, and dexterous anatomiſt, Dr ALEXANDER MONRO, made ſome experiments upon the hedgehog, as well as upon frogs, though he informs me †, that he did not proſecute theſe experiments with all the accuracy and attention which the curioſity of the ſubject merits. During a ſevere winter, he kept a hedgehog in a room, where there was no fire from the month of November till March. He placed near the animal boiled beef, bread, cheeſe, potatoes, water, and ſtraw. About the beginning of December 1764, the hedgehog was affected with an unuſual degree of drowſineſs. He, however, continued to eat, though more ſparingly, till the 25th of that month. From that time till the 8th day of March following, he continued in a profound ſleep, except when artificially rouſed. After being thus rouſed, he ſoon walked back to his place of retreat, and reſumed his dormant ſtate. On the 25th of December, he weighed thirteen ounces and three drachms; on the 6th of February eleven ounces and ſeven drachms; and, on the 8th of March; eleven ounces and three drachms. The Doctor obſerved a ſmall quantity of feculent matter and urine among the hay. At the time of his actual reviviſcence, no perſon was preſent; and, of courſe, the circumſtances attending it are unknown. In the courſe of three months, he did not perceive

* For theſe and ſimilar facts, ſee Buffon and many other natural hiſtorians.

† In a letter, dated March 1794.

that the hedgehog had either ate or drank; but it remained conſtantly in a profound ſleep among the ſtraw. Its limbs, however, were never rigid; but it loſt two ounces of its weight. *Frogs*, which the Doctor kept during the winter in a veſſel with water, ſeemed to be in a ſimilar ſtate with that of the hedgehog.

From every example we have enumerated, it appears, that extreme cold, and an excluſion from a free acceſs to the operation of the external air, are the principal cauſes which produce the torpidity of certain brute animals. We ſhall now make a remark upon what happens to the human ſpecies when expoſed to great cold, eſpecially if accompanied with bodily fatigue. Men in this ſituation, of which fatal inſtances too often occur, feel an almoſt irreſiſtible inclination to lie down to reſt. When they yield to this propenſity, being benumbed with cold, they ſoon fall aſleep; and this ſleep infallibly terminates in death. Thoſe animals, however, who ſleep during the winter, uniformly not only retire below ground, or into ſome other receſs, but cover themſelves with ſubſtances which reſiſt ſuch deleterious effects of cold as would deſtroy their exiſtence. If man and the larger animals, when benumbed and actually aſleep from the operation of cold, were placed in ſimilar circumſtances, it is probable they might be induced to ſleep a very great length of time, and again awake without ſuffering much injury.

CHAP.

CHAPTER VII.

Of the Language of Beaſts.

UNDER the term *beaſts*, in the courſe of this chapter, I comprehend all thoſe animals, of every claſs, who are inferior in mental powers to the human ſpecies. We can only perceive the language of beaſts by attending to the particular cries they make, and to the influence which theſe cries have upon the feelings and actions of their aſſociates. This ſubject is very copious. But I muſt limit myſelf to a few facts, accompanied with ſuch remarks as they may occaſionally ſuggeſt.

I ſhall begin with the claſs of quadrupeds. But it is neceſſary to inform my readers, that by the *language of beaſts*, I mean not what is called *articulate* or *artificial* language, but ſuch vocal *ſounds* as are expreſſive of different feelings, wants, and deſires, by which animals are enabled to communicate particular ſentiments to each other.

In oppoſition to *artificial* language, the nature of which depends upon convention or agreement, and ſometimes upon mere accident, there is a *natural* language which is common to man and to moſt of the

the inferior animals. Men poſſeſs both theſe ſpecies of language; but the brute animals are limited ſolely to natural language. Brutes, by uttering certain ſounds, are enabled to communicate their feelings, whether external or internal, to every individual of the ſame ſpecies. Theſe aſſemblages of inarticulate ſounds are uniformly the ſame, and, contrary to what takes place in the artificial language of man, ſuffer no variation from climate or inſtitution, but are equally intelligible in every diviſion of the globe.

The *elephant* loves the ſociety of his equals, and can make himſelf to be underſtood by them. Elephants are often obſerved to aſſemble in troops, to act in concert, and again to diſperſe. Theſe movements are not accidental, but produced by certain ſounds and geſtures; and, though they carry on no common operation, this circumſtance may, perhaps, be aſcribed to the want of room and of tranquillity; for, in all countries inhabited by the elephant, men have been very antiently multiplied; he is, therefore, perpetually diſturbed, and no where poſſeſſes peaceably ſufficient ſpace to eſtabliſh ſecure and permanent abodes. Elephants, in a wild ſtate, are neither ſanguinary nor ferocious. Their natural diſpoſitions are gentle, and they never make an improper uſe of their arms or their ſtrength; for they exert their offenſive talents only in defending themſelves, or in protecting their companions. Their manners are ſocial. They commonly march in numerous troops; the eldeſt precede; the young and the feeble are placed in the middle; and thoſe of middle age and full of vigour bring up the rear. The mothers carry their young firmly embraced in their trunks. This order, however, they obſerve in perilous marches only, as when they intend to paſture on cultivated fields. In the deſerts and foreſts, they travel with leſs precaution, but never ſeparate ſo far as to exceed the poſſibility of receiving aſſiſtance from each other.

other. When alarmed with any dangerous attack, they utter *cries* expreſſive of their ſituation and want of aſſiſtance. The meaning of theſe cries is perfectly underſtood by all the elephants within the reach of hearing; and they immediately run with eagerneſs to the relief of their diſtreſſed or apprehenſive companions. When an elephant diſcovers a plentiful paſture, he *calls* to the others, and invites them to partake of his good fortune. From the great ſagacity with which Nature has endowed him, he ſoon becomes acquainted with the language, geſtures, and deſires of men. He is, of courſe, eaſily tamed, inſtructed, and rendered ſubmiſſive and obedient. As he is ſtronger as well as more intelligent than any other animal, his ſervices are more ready, more extenſive, and more uſeful. When the hunters go in queſt of a wild elephant, they carry along with them into the foreſt a tamed female in ſeaſon; and, when they imagine themſelves to be near enough to be heard, her governour makes her utter the *cry* of love. The wild male inſtantly *replies*, and haſtens to join her. She is then made to march towards an incloſure, pitfal, or other ſnare, repeating, from time to time, the ſame alluring cry, till he is completely deceived and caught. In a domeſtic ſtate, the elephant ſoon learns to underſtand ſigns, and even the meaning of words, ſounds, and geſtures. He diſtinguiſhes the tones of command, of anger, and of approbation, and regulates his actions accordingly. He never miſtakes the voice of his maſter; but receives his orders with attention, executes them with prudence and alacrity, but without any degree of precipitation; for his movements are always meaſured, and his character ſeems to partake of the gravity of his maſs. After this animal has had time to learn the *language* of his conductor, *words* alone are ſufficient to make him perform whatever is required of him. The eyes of the elephant, in proportion to the magnitude of his body, are very ſmall, but lively, brilliant, and highly

highly expreſſive of ſentiment. He turns them ſlowly and with mildneſs towards his maſter. When he ſpeaks, the animal regards him with an eye of friendſhip and attention; and his penetrating aſpect is conſpicuous when he wants to anticipate the inclinations of his governour. He reflects, deliberates, thinks, and never determines till he has ſeveral times examined, without paſſion or precipitation, the ſigns or commands which he ought to obey. As the elephant is naturally grave and moderate, we eaſily read in his eyes, whoſe movements are ſlow, the order and ſucceſſion of his internal affections. The *cry* of the elephant, whether excited by love or other ſenſations, is heard and underſtood at the diſtance of more than a league; but it does not, like the roaring of the lion or tyger, create terror. When the *cornack*, or conductor of the elephant, wiſhes to have ſome laborious office performed, he explains the nature of the operation, and mentions the reaſons which ſhould induce him to obey. If the elephant ſeems reluctant, his conductor promiſes to give him arrack, or ſome other thing of which he is fond. But it is extremely dangerous to break any of theſe promiſes. Many cornacks have fallen victims to indiſcretions of this kind. A well authenticated fact, on this ſubject, happened at Dekan. An elephant, from ſome motive of revenge, killed his cornack. The man's wife, who beheld the dreadful ſcene, took her two children and threw them at the feet of the enraged animal, ſaying, 'Since you have ſlain my huſband, take 'my life alſo, as well as that of my children.' The elephant inſtantly ſtopped, relented, and, as if ſtung with remorſe, took up the eldeſt boy with its trunk, placed him on its neck, adopted him for its cornack, and would never afterwards allow any other perſon to mount it.

Among

Among the larger ſpecies of animals, the *camel*, the *dromedary*, the *horſe*, &c. not only expreſs, by particular ſounds, their own wants, or deſires, their pleaſures and pains, but, when in a domeſtic ſtate, learn the meaning of *words*, and know diſtinctly how to obey the commands of their maſters. A troop of camels, when travelling in the ſandy deſerts of Africa, after a repoſe, the moment they are *deſired*, bend their knees, and lie down to be again loaded. Theſe gentle and inoffenſive creatures muſt ſuffer much; for, eſpecially when over-loaded, or when too long in want of water, they expreſs their uneaſineſs by uttering the moſt lamentable cries. In marching through the deſert, the camels require neither whip nor ſpur; but, when they begin to be tired, their courage is ſupported, and their fatigue is ſoftened, by *ſongs*, or by the ſound of ſome muſical inſtrument. Their conductors relieve each other in ſinging. When time is likely to be too much prolonged, the animals are occaſionally allowed to reſt only about an hour; after which, the ſongs are renewed till they arrive at another reſting place, when they again lie down. In this manner, and by theſe means, the camels, with heavy loads, perform journies almoſt incredible.

The language of the *horſe* is not extenſive. Mares and geldings neigh leſs frequently than perfect horſes. Their voices alſo are neither ſo deep nor ſo full. In horſes of every kind, whether entire or mutilated, five ſpecies of neighing, expreſſive of different paſſions, are diſtinguiſhable. In the neigh of *joy*, the voice is long protracted, and begins and terminates with ſharp ſounds: The horſe, at the ſame time, flings, but without any inclination to ſtrike. In the neigh of *deſire*, whether proceeding from love or friendſhip, the horſe does not fling, the voice is long continued, and finiſhes with graver tones. The neigh of *anger*, during which he flings

and ſtrikes with fury, is very ſharp and ſhort. Neither is the neigh of *fear*, during which he likewiſe flings, longer than that of anger; the voice is grave and hoarſe, and ſeems as if it proceeded entirely from the noſtrils. This neigh has ſome reſemblance to the roaring of a lion. The noiſe expreſſive of *pain* is not properly a neigh, but a kind of groan or ſnorting uttered with a grave tone, and following the alternate motions of reſpiration. It has been remarked, that horſes which neigh moſt frequently, from motives of joy or deſire, are the moſt generous and healthy. The voice of unmutilated horſes is ſtronger than that of geldings or of mares. The female voice, even from the moment of birth, is weaker than that of the male. At two, or two and a half years, which is their age of puberty, the voices of both males and females, as in man and moſt animals, become ſtronger and more grave. In that large and thinly peopled country, comprehended between the rivers Don and Nieper, in the Ukraine, and among the Coſſacks, the wild horſes aſſociate in troops of three, four, or five hundred. The conduct and behaviour of theſe troops ſeem to indicate, that men are not the only animals who live in ſociety and obey, by compact, the commands of one of their own number. Each of theſe troops have a chief to whom they give implicit obedience. By geſtures, movements, and *voice*, he directs their courſe, and makes them proceed or ſtop at his pleaſure. When the troop is attacked by robbers, or by wolves, this chief likewiſe gives *orders* for the neceſſary arrangements and actions. He is extremely vigilant and alert, runs frequently round the troop, and, when he finds any horſes out of their rank, or lagging behind, he commands and obliges them to take their proper ſtations. Theſe animals, without being mounted or conducted by men, march in nearly as good order as our trained cavalry. Though at perfect liberty, they paſture in files and brigades,

gades, and form different companies, without ever mixing or ſeparating. The chief occupies this important and laborious office four or five years. When he becomes weaker, and, of courſe, leſs active, another horſe, ambitious of command, and who is conſcious of his own ſtrength, ſprings out from the troop, attacks the old chief, who, if not vanquiſhed, keeps his command; but, if beat, he enters, with evident marks of ſhame and regret, into the common herd. The conqueror inſtantly takes the lead, is recognaſed as ſovereign, and obeyed by the whole troop*.

With regard to the *ox-kind*, their language is very limited. The bull ſeldom bellows but when he feels the ardours of love, and the female perfectly underſtands the meaning of what he *utters*. When ſtrangers appear in his paſture grounds, he eyes them with ſuſpicion, utters deep-toned murmurs, aſſumes a threatening aſpect, and ſometimes runs furiouſly at the intruders. Theſe menacing tones and geſtures are not, as generally imagined, indications of a natural ferocity of diſpoſition. On the contrary, they are the expreſſions of heroiſm and of gallantry. By the ſounds he utters, the females are alarmed and put upon their guard. They approach near him, and regard him as their protector and champion. The lowings of the cow proceed oftener from terror or timidity than from any other cauſe; and pain, hunger, or the abſence of the mother, produce the complaints of the calf.

Sheep have been repreſented by the COUNT DE BUFFON and by many other natural hiſtorians, as the moſt ſtupid of all quadrupeds.

* See deſcrip. de l'Ukraine par Beauplan, and a Memoir communicated to the Count de Buffon by M. Sanchez, formerly phyſician to the Ruſſian army.

This charge, however, ſeems not to be altogether juſt. In a ſtate of ſubjection, individuals ſeldom reſiſt the attacks of an enemy. But they ſoon learn that their protection lies in the ſhepherd and his dog; for, when it is neceſſary to watch the flock, in order to prevent the aſſaults of wolves, foxes, or dogs, upon the firſt alarm, the whole run with violence to the place where the watchmen are ſtationed. On other occaſions they never chooſe to make a very near approach either to men or dogs; but the ſenſe of immediate danger removes their uſual timidity, and their ſagacity teaches them where to ſeek protection. Theſe aſſociated movements are effected both by imitation and by peculiar *cries*, or bleatings, expreſſive of alarm and of danger; for, though a very few individuals only perceive the common enemy, yet, by motion and language, the intimidating ſentiment is in a moment communicated to the whole. When the female loſes or is robbed of her lamb, ſhe *cries* in a manner ſtrongly expreſſive of the anguiſh ſhe feels. In the eagerneſs of her ſearch, the loudneſs of her complaints, and her deſultory movements, her eye-balls ſeem to ſtart from their ſockets; and her irregular and diſtracted motions and diſtortions, joined to the violence and conſtancy of her bleatings, are evident indications of the moſt pungent grief. A young lamb, when it wanders from its mother, in the midſt of the moſt numerous flocks, runs precipitantly about, and *cries* in pitiable tones. Theſe *cries* the mother recogniſes, diſtinguiſhes them to be thoſe of her own offspring, and inſtantly joins the lamb; their congreſs is attended with mutual expreſſions of the greateſt joy.

With regard to mental and corporeal powers, the *goat* is much ſuperior to the ſheep. He approaches man ſpontaneouſly, and is eaſily rendered familiar. He is fond of careſſes both by the hand and

and by *words*, and is capable of a conſiderable degree of attachment to thoſe with whom he is familiar. When kept, like dogs or cats, in a domeſtic ſtate, the whole powers of the goat are called forth. He utters *ſounds* expreſſive of all his deſires, and underſtands, in a limited degree, what is *ſaid* to him by any of the family, as well as by all thoſe who live in the neighbourhood. When he has remained ſome time in this ſtate, his natural talents are unfolded and improved in a high degree. He knows perſonally every man, woman, child, and dog, within his uſual range. His natural genius, which is bold and adventurous, when improved by domeſtication, renders him often frolicſome and even petulant. But, except to ſtrangers, he is ſeldom ſeriouſly miſchievous.

The natural ſagacity and talents of the *dog* are well known and juſtly celebrated. But, when theſe are improved by aſſociating with man, and by education, he becomes, in ſome meaſure, a rational being. The ſenſes of the dog, particularly that of ſcenting diſtant objects, give him a ſuperiority over every other quadruped. He reigns at the head of a flock, and his *language*, whether expreſſive of blandiſhment or of command, is better heard and better underſtood than the *voice* of his maſter. Safety, order, and diſcipline are the effects of his vigilance and activity. Sheep and cattle are his ſubjects. Theſe he conducts and protects with prudence and bravery, and never employs force againſt them, except for the preſervation of peace and good order. But, when in purſuit of his prey, he makes a complete diſplay of his courage and intelligence. In this ſituation, both his natural and acquired talents are exerted. As ſoon as the *horn* or the *voice* of the hunter is heard, the dog demonſtrates his joy by the moſt expreſſive emotions and *accents*. By his movements and *cries*, he announces his impatience for combat,

and

and his paſſion for victory. Sometimes he moves ſilently along, reconnoitres the ground, and endeavours to diſcover and ſurpriſe the enemy. At other times, he traces the animals ſteps, and, by different modulations of *voice*, and by the movements, particularly of his tail, indicates the *diſtance*, the *ſpecies*, and even the *age* of the fugitive deer. All theſe movements and modifications of *voice* are perfectly underſtood by experienced hunters. When he wiſhes to get into an apartment, he comes to the door; but if that is ſhut, he ſcratches with his feet, makes a bewailing *noiſe*, and, if his petition is not ſoon anſwered, he barks with a peculiar and humble *tone*. The ſhepherd's dog not only underſtands the *language* of his maſter, but, when too diſtant to be *heard*, he knows how to act by ſignals made with the hand.

The ſenſes of the *fox* are equally good as thoſe of the *wolf*; but his ſentiments are more delicate, and the organs of his voice more pliant, which enable him to uſe a more extenſive *language*. The wolf utters only frightful howlings; but the fox barks in different tones, yelps, and raiſes a mournful cry ſomething reſembling that of the peacock. He varies his tones according to the different ſentiments with which he happens to be effected. He employs an *accent* peculiar to the chace, to the tone of deſire, of complaint, and of ſorrow. He has another *cry*, expreſſive of acute pain, which he utters only when he is ſhot, or has ſome of his limbs broken. His yelping is a ſpecies of barking, and conſiſts of a quick ſucceſſion of tones; at the termination of which he generally raiſes his voice ſimilar to the cry of the peacock.

The language of the *cat* is more limited than that of the dog. Still, however, it is highly expreſſive of her feelings and deſires. When

When ſhe wants to flatter, or to ſollicit favour, ſhe makes a *purring* noiſe, accompanied with blandiſhing movements, and often rubs her ſides upon the ſhins or garments of the perſon from whom ſhe expects gratification. In the ſeaſon of love, the female not only goes in queſt of the male, but announces, by loud *cries* and diſguſting motions, the preſſure of her neceſſities. Theſe *cries* never fail to excite the ſentiments and procure the attention and aſſiſtance of the male. When a cat happens to be barred out, her *mew* of anxiety, or her petition to get admittance, is perfectly different from moſt of her other cries, but ſeems to be the ſame with that which ſhe utters when deſirous of food.

The *roe-buck* bellows not ſo frequently, nor with ſo loud or ſo ſtrong a voice, as the ſtag. The young ones utter a ſhort and plaintive cry, *mi...mi*, by which they indicate their want of food. This ſound is eaſily imitated; and the mother, deceived by the well-known *call*, often comes up to the very muzzle of the hunter's gun, and falls a victim to her maternal affection.

With regard to the *orang-outang*, the various ſpecies of *apes* and *monkeys*, their conformation gives many of them a near reſemblance in external figure to that of man. From this circumſtance, they are enabled to imitate almoſt every human action. LINNÆUS, and ſome other authors, have even gone the length of affirming, that the orang-outang *ſpeaks* with a kind of hiſſing voice. But we have no proper evidence of this ſuppoſed fact. On the contrary, the COUNT DE BUFFON, who often examined the ſmaller ſpecies of orang-outang, denies that this animal ever uttered any ſounds which had the moſt diſtant reſemblance to articulate language. By the mode of chattering and other ſounds, however, any perſon may ſoon learn their

their particular intentions and emotions. BATTEL, who deſcribes the largeſt ſpecies of orang-outangs, tells us, that 'they cannot *ſpeak*, 'and have no underſtanding more than a beaſt *.' By *ſpeech*, in this paſſage, BATTEL evidently means *articulate* language; and this very circumſtance is, perhaps, more than figure and manners, the ſtrongeſt characteriſtic which diſtinguiſhes mankind from the brute creation. The COUNT DE BUFFON has collected, from the moſt authentic travellers, a great number of facts concerning the general manners and ſagacity of the two ſpecies of orang-outangs; but, it ſhould appear, he has not been able to obtain much information as to their language, or modes of expreſſing their paſſions and ſentiments. Notwithſtanding the great ſimilarity between the form and organization, both external and internal, of the orang-outang, and the general ſtructure of man, yet he cannot lay claim to humanity. Though he has the ſame organs of *ſpeech*, he never attempts to *articulate*. The figure and proportions of his brain are likewiſe the ſame; but he diſcovers no extent of thought. There cannot, M. DE BUFFON properly remarks, be a more evident proof than is exhibited in the orang-outang, that matter alone, though perfectly organized, can produce neither language nor extenſive thinking, unleſs it be animated by minds ſuperior to thoſe of brutes.

The *pigmies* are very numerous in the mountains of Mauritania, Conſtantia, and Bugia. We are informed by MARMOL, that they live upon herbs, corn, and fruits; that, in their depredatory expeditions, they go in troops to rob the gardens or fields; but, before leaving the woods or thickets, one of them aſcends a high tree, or ſome eminence, from which he takes a ſurvey of the country, and, when he obſerves no perſon in the way, he gives the ſignal, by a *cry*, which

* Purchas's Pilgrims, part 2. p. 982.

which is perfectly underſtood, that the troop may proceed with ſafety, and leaves not his ſtation as long as his companions are foraging abroad. But, whenever he perceives any perſon approaching, he *ſcreams*, with a loud and intelligible *voice*, warning the robbers of their danger, when the whole, by leaping from tree to tree, fly off, and make their eſcape to the mountains.

In Senegal, many other ſpecies of apes, baboons, and monkeys, when robbing orchards or corn-fields, obſerve a ſimilar conduct with that of the pigmies. One of them, on theſe occaſions, ſtands ſentinel on a tree, liſtening and looking about on all ſides, while the others are buſy in collecting the booty. When the ſentinel deſcries any perſon, he inſtantly, by loud and ſignificant *ſhrieks*, alarms the foraging troop, who obey the ſignal, and fly off with their prey *.

The *ouarines*, a large ſpecies of American monkeys, are diſtinguiſhed by the appellation of *preachers*. MARCGRAVE, in his Hiſtory of Braſil, relates the following facts concerning theſe preacher-monkeys, which, he aſſures us, he himſelf often witneſſed. The facts are, That, every morning and evening, the ouarines aſſemble in the woods; that one of them aſſumes a more elevated ſtation, and makes a ſignal with his hand for the others to ſit around and liſten to him; that, when they are all ſeated, he begins a *diſcourſe* ſo loud and rapid as to be heard at a great diſtance; that all the reſt keep the moſt profound ſilence; that, when he ſtops, he gives a ſignal with his hand for the others to reply; that, in an inſtant, the whole *cry* together, till he commands ſilence by another ſignal, which they, in a moment, obey; that the firſt reſumes his *harangue*; and that, after hearing him attentively for a conſiderable time, the aſſembly

* Voyage de le Maire, p. 103.

breaks up *. It were to be wiſhed that MARCGRAVE had endeavoured to diſcover the intention of theſe *field-preachings*; for, if the circumſtances he relates be true, and I know no objection to his veracity, it is evident that the animals muſt be actuated by ſome peculiar motives. Theſe *harangues*, perhaps, may, like our houſes of Parliament, have ſome common intereſt for their object, and contain directions for the moſt prudent modes of accompliſhing their purpoſes.

We ſhall now leave the language of *quadrupeds*, and proceed to mention a few particulars concerning that of *birds*. Brevity here is the more neceſſary, becauſe in many places of my former volume, though treating of very different ſubjects, inſtances of the language of brute animals not unfrequently occur. Here I ſhall not confine myſelf to any ſyſtématic arrangement, but content myſelf with rambling, without any limited order, through the eloquence of the feathered tribes.

In general, it may be remarked, that every ſpecies of birds have peculiar modulations of voice expreſſive of love, of pain, of anxiety, of anger, of complacency, and of good or bad fortune. Theſe expreſſions, however, ſeem to be confined and intelligible to the individuals only of the ſame ſpecies. But there are certain ſounds, particularly thoſe of danger and of terror, which are perfectly underſtood, not only by the ſame ſpecies, but even by different genera and orders of birds. When the fox wiſhes to ſurpriſe birds in the neighbourhood of hedges, bruſh-wood, or trees, he lies down on his belly, and extends his hind-legs as if he were dead. In this ſituation, however, he is perfectly vigilant, and cunningly obſerves the motions

* Marcgrav. Hiſt. Braſ. p. 226.

motions of the birds along the hedges and trees. If any of them happen to ſpy him, they immediately ſend forth ſoft, mournful, but ſhrill *cries*, to alarm their neighbours, and to advertiſe them of the enemy's approach. Blackbirds and jays have been frequently obſerved to follow the fox, flying from tree to tree, and often repeating the ſame *cries* of alarm and of danger. Theſe *cries*, by whatever birds they are uttered, are underſtood by every ſpecies within reach of hearing, who inſtantly uſe all their arts of defence againſt the common enemy. Birds are well acquainted with their natural enemies, and this knowledge ſeems to be purely inſtinctive, and not derived from experience or obſervation. When they obſerve the *pine-weaſel*, though for the firſt time, they utter the ſame mournful *cry* to announce his approach, as when they ſee a fox. It is likewiſe worthy of remark, that birds utter this peculiar *cry* upon the appearance of all carnivorous animals, as the wolf, the fox, the pine-weaſel, the cat, &c.; but never againſt the ſtag, the roe, the hare, nor, I believe, even man, who, of all animals, is the greateſt deſtroyer of the inferior tribes.

The language of moſt birds is a muſical language, and reducible by a pitch-pipe to a muſical key. All ſpecies are not equally eloquent. The language of ſome ſpecies is copious and fluent, but that of others is confined to a few important ſounds, which are neceſſary to expreſs barely their feelings and their wants. But no bird, like the finny tribes, is perfectly mute. The language of birds, Mr WHITE of Selbourne remarks, is very antient, and, like other antient languages, very elliptical. They ſay little, but much is meant and underſtood *. *Owls* have a very expreſſive language.

* See Nat. Hiſt. of Selbourne, by the ingenious and Rev. Mr WHITE, p. 240. of whoſe obſervations I have made frequent uſe.

They *hoot* in a fine vocal ſound, which has a conſiderable reſemblance to the human voice. This note ſeems to expreſs complacency, and ſometimes rivalſhip among the males. They likewiſe uſe a quick call, and an horrible ſcream; and they *ſnore* and *hiſs* when they mean to threaten and intimidate. The notes of the *eagle-kind* are ſhrill and piercing; and, in the ſeaſon of love, very much diverſified. *Ravens*, beſide their loud croaks, ſometimes exert a deep and ſolemn note, which makes the woods reſound. The amorous ſound of a *crow* is ſtrange, and even ſomewhat ridiculous. In the breading ſeaſon, *rooks* make clumſy attempts towards ſinging. The *parrot-kind*, as remarked in Vol. I. poſſeſs a great range of modulation in their voice, as appears by the facility with which they learn to pronounce words, and even ſhort ſentences. The *coo* of the pigeon is amorous and mournful. When the male makes love, or is jealous of rivals, he erects his body, raiſes the feathers of his neck and head, and employs many ſtrutting and lively geſticulations. To theſe movements he adds a *guttural*, but not unpleaſant kind of *ſpeech*, which is ſoft and alluring when he means to ſolicit the female. When jealous of a rival, he utters the ſame notes, but gives them a more ſharp, and even a menacing *tone*. The *woodpecker*, when pleaſed, ſets up a loud and hearty ſpecies of *laugh*. The *goat-ſucker*, or *fern-owl*, from the duſk till day-break, ſerenades his mate with *ſounds* ſimilar to the clattering of caſtanets. Moſt of the ſmall birds, or *paſſeres*, expreſs their complacency by ſweet modulations, and a variety of melodious *ſounds*. The *ſwallow*, by a *ſhrill alarm*, rouſes the attention of his ſpecies, and tells them that the hawk approaches. Gregarious and aquatic birds, eſpecially thoſe of the nocturnal kind, who ſhift their abodes in the dark, are extremely noiſy and *loquacious*; as cranes, wild-geeſe, wild-ducks, &c.

Their

Their perpetual clamour prevents them from diſperſing and loſing their companions.

We ſhall now make a few obſervations on domeſtic fowls, whoſe *language* is beſt known, and, of courſe, beſt underſtood. The *voice* of the peacock, like thoſe of many birds of the fineſt plumage, is harſh and grating. The braying of aſſes, or the yelling of cats, are not more diſagreeable. The voice of the *gooſe* clanks and ſounds ſomewhat like a trumpet; but, the *gander*, eſpecially when he apprehends danger to the young brood, joined to his threatening aſpect, and the movements of his neck, *hiſſes* in a manner ſo formidable as deters the too near approach of children and of ſmall dogs. In the *duck-kind*, the *voices* of the female and male are remarkably different. The *quack* of the female is loud and ſonorous; but the voice of the *drake* is harſh, inward, and feeble. The cock *turkey*, when proud, or when addreſſing his miſtreſs, blows up his wattles, erects his feathers, makes a humming noiſe by vibrating his wings, and utters a gobbling kind of *ſound*, which, though we cannot deſcribe, is perfectly underſtood by his own ſpecies. When attacked by a boy, or any other adverſary, he aſſumes a pert and petulant *tone*; and ſuch is the obſtinate courage he diſplays, that he will rather die than give up the conteſt. A hen *turkey*, when ſhe leads forth her young brood, watches them with the utmoſt anxiety. If a hawk, or any bird of prey, appear, though very high in the air, the careful and affectionate mother announces the enemy with a low inward kind of *moan*. If he makes a nearer approach, her *voice* becomes earneſt and alarming, and her *outcries* are redoubled both in loudneſs and frequency. The effects of this intereſting *eloquence* upon the young are aſtoniſhing. They underſtand the intimidating *language* of the mother, though they know not the immediate cauſe of the

the danger; but, by the intuitive knowledge of the meaning of what ſhe *ſays* to them, they inſtantly employ every artifice to conceal and protect themſelves from the impending danger. To accompliſh this purpoſe, they run under hedges, bruſh-wood, and even the leaves of cabbages, and of ſuch other plants as happen to be near them.

None of our domeſtic birds ſeem to poſſeſs ſuch a variety of *expreſſion*, and ſo copious a *language* as common poultry. A chicken of four or five days old, when held up to a window frequented by flies, immediately ſeizes its prey, and utters little *twitterings* of complacency; but, if a bee or a waſp is preſented to it, its *notes* inſtantly become *harſh*, and expreſſive of diſapprobation, and of a ſenſe of danger. When a hen is about to lay an egg, ſhe intimates her feelings by a joyous and ſoft *note*: But ſhe has no ſooner diſburdened herſelf, than ſhe ruſhes forth with a *clamorous* kind of joy, which the cock and the reſt of his miſtreſſes immediately adopt. This tumultous noiſe is not confined to the family, or rather ſeraglio, but is tranſmitted from yard to yard, and ſpreads to every homeſtead within hearing, till at laſt the whole village is in an uproar. When a hen has hatched a brood, a new and intereſting ſcene is exhibited. Her relation as a mother requires a new ſpecies of *language*. She then runs *clucking* and *ſcreaming* about, and ſeems to be agitated with the greateſt anxiety. When men or dogs ſuddenly approach her feeble brood, her courage and maternal care are aſtoniſhing. With loud *cries*, and rapid motions, ſhe aſſails the enemy; neither a man, nor a lion, in theſe circumſtances, are ſufficient to repreſs the courage of this unarmed bird. I have ſeen a hen, when attending her young, boldly attack, intimidate, and beat of a maſtiff. The *vocabulary* of the cock is likewiſe pretty extenſive; and his generoſity

ſity and gallantry are remarkable: When he diſcovers a quantity of food, inſtead of devouring it himſelf, he inſtantly *calls* to his concubines to partake of the repaſt; and, if he diſcerns a bird of prey, or any other alarming danger, with a warning *voice*, he deſires his family to be on their guard againſt the common enemy. The cock has alſo at command his *love ſpeeches*, and his *terms* of defiance. But his moſt peculiar *ſound* is his *crowing*, by which, in all ages, he has diſtinguiſhed himſelf as the countryman's clock, as the watchman who proclaims the diviſions of the night.

On the ſubject of our common poultry, I muſt not omit a curious fact recorded by that intelligent naturaliſt the Rev. Mr WHITE of Selbourne. A neighbouring gentleman had, one ſummer, loſt moſt of his chickens by the depredations of a ſparrow-hawk, that was in the practice of gliding down between a pile of faggots and the end of his houſe to the place where the hen-coops ſtood. The owner, exaſperated to ſee his flock daily diminiſhing, hung a ſetting-net between the houſe and the pile, into which the unwary robber daſhed, and was entangled. Reſentment ſuggeſted retaliation; he, therefore, clipped the wings of the hawk, cut off his talons, and, after fixing a cork on his bill, threw him down among the brood-hens. Imagination, Mr WHITE remarks, cannot paint the ſcene that enſued. The *expreſſions* excited by fear, anger, and reſentment, were ſtrange and intereſting. The enraged matrons upbraided, execrated, inſulted, and, at laſt, triumphed over the helpleſs victim; they never deſiſted from buffetting their adverſary till they had torn him in pieces *.

With regard to *fiſhes*, they have been always conſidered as perfectly

* WHITE's Nat. Hiſt. of Selbourne, p. 243.

fectly devoid of *language*. But, on this ſubject, it muſt be remarked, that the element in which they live, their natural timidity, the ſwiftneſs of their movements, and a thouſand other circumſtances, remove them from the accurate inſpection and inquiries of men. That they have the organs neceſſary for hearing, the juſtly celebrated DR MONRO, in his diſſertation on fiſhes, has demonſtrated in the moſt ſatisfactory manner. It is likewiſe well known, that water, which always contains a certain portion of air, is an excellent vehicle of *ſound*. It is, therefore, from theſe two facts, highly preſumable, that fiſhes have ſome mode of communicating their ſenſations and deſires to one another. To what purpoſe ſhould Nature have beſtowed upon ſuch a numerous claſs of animals, as that of fiſhes, organs exquiſitely adapted for hearing, unleſs to endow them with that faculty? And, if fiſhes hear, it may fairly be concluded, that they occaſionally utter *ſounds* which are intelligible to their companions. The ſtrong analogy derived from all terreſtrial animals is another argument in ſupport of this rational conjecture.

We ſhall now make a few obſervations concerning the *language* of *inſects*, particularly thoſe of the winged tribes. The *amours* of dragon-flies, of ſpiders, and of butterflies, furniſh many appearances which permit us not to doubt, that the males and females have a very *expreſſive* mode of conveying their ſentiments to each other. Their varied movements, their little alluring arts, are indications of that *language* which all ſentient beings poſſeſs in ſome degree, and the *ſigns* of which are ſeldom equivocal. We ſee the male ſoliciting, by his gambols, his careſſes, and his perſeverance, favours which the female affects, at firſt, to refuſe, with no other apparent intention than to excite and inflame the paſſion of the male.

The

The *graſshopper* furniſhes us with a remarkable inſtance of the *language* of inſects. The graſshopper is a ſpecies of *ventriloquiſt*. The organs of his voice, which are both curious and complicated, inſtead of his head, are placed in his *belly*. By this inſtrument, in the ſeaſon of love, he *chants*, or *chirps*, to the female, who ſeems to be pleaſed with his addreſſes, and, when diſpoſed, ſhe approaches him, being led, not by the eye, but by his *voice*. From a very general analogy, we are warranted to ſuppoſe that organs of *voice* imply the relative organs of *hearing*. Hence we may conclude, that the female graſshopper both hears and underſtands the *love-ſpeeches* of the male.

Thoſe inſects which are brought forth, and live in ſociety, who mutually aſſiſt each other in conſtructing works for the common good and accommodation, ſeem to have the greateſt need of an extenſive *language*. Being deſtined to form one large family, to give mutual aid and ſupport to each other in all their common wants and operations, a ſpecies of *language*, and that not very limited, ſeems to be abſolutely neceſſary to enable them to underſtand and to execute the different labours allotted to them with that regularity and harmony, which is ſo remarkable in the magnificent ſtructures erected by bees, waſps, and many other gregarious inſects. Bees, as well as flies of every kind, make a humming *noiſe* by the vibrations of their wings. But the noiſe of the bee, when flying home with its load, is very different, even to our comparatively blunt ears, from that which it utters after arriving at the hive, where it makes a peculiar *noiſe*, which is perfectly underſtood by the working bees, who inſtantly come and carry off this freſh ſupply of materials.

Common flies, and particularly the large fleſh-flies, make a ſoft

ſinging kind of noiſe when flying about in tranquillity. But, when alarmed, or when entangled in the web of a ſpider, the *noiſe* of their wings intimates diſtreſs and terror. Inſtead of being ſoft and agreeable, it is then loud, quick, harſh, and interrupted, preciſely analogous to the language and cries of men and of the larger animals when placed in ſimilar circumſtances. In my former volume, when treating of *hearing*, I have rendered it more than probable, that the common houſe-fly is endowed with the faculty of hearing. Whenever we perceive, that effects and movements are uniformly produced by certain ſounds, it may be concluded, that the animal is furniſhed with organs of hearing, though, from their minuteneſs, we are unable to diſcover where they are ſituated. In the winged tribes of inſects, it is probable that the organs of hearing are placed near the inſertion of the wings, or, at leaſt, that nerves or veſſels proceed from the wings to the more immediate organs of hearing, which may be incloſed under that elaſtic cruſtaceous ſubſtance with which the head is covered. This idea will be rendered ſtill more probable by attending to the various modulations of *ſounds* produced by the vibrations of the wings, and by comparing theſe with the preſent ſituation and employment of the inſect. When a common fly is irritated or terrified, the *noiſe* made by the vibrations of its wings is very different from that produced when the animal is flying about undiſturbed. When a houſe or a fleſh-fly is tormented by thoughtleſs children, who, for amuſement, often inſert pretty large pins into the bodies of theſe inſects, which the animals, with much pain, are obliged to trail after them, the *noiſe* of their wings is then highly expreſſive of impatience and of torture. But, when they meet with food agreeable to their taſte, the *noiſe* of their wings is ſoft, gentle, and even melodious. When the ſeaſon of their amours arrives, a new and intereſting ſcene, both with regard to movements and

language,

language, is exhibited. At that important period of their exiſtence, they aſſemble in groups, which are more or leſs numerous, according to circumſtances. Theſe groups fly about, making a thouſand circumgyrations, but always keep pretty cloſe to each other. In theſe *love-dances*, as I call them, the males and females often meet, and lay hold of each other in the air; but the congreſs is only momentary. The *noiſe* of their wings, however, on this critical occaſion, is briſk, ſharp, and ſeemingly expreſſive of *joy*: This *noiſe* is eaſily diſtinguiſhable from that excited by terror or by any embarraſſing or painful ſituation. But theſe groups of lovers not unfrequently deſcend from the higher parts of a chamber, and alight upon tables or chairs. Here their *language* and motions become ſtill more intelligible. The males run about with ardour in queſt of the females, and perch with alacrity and a pleaſant murmuring ſpecies of *noiſe* upon the backs of the females, where, if their ſtay is ſhort, it is amply repaid by the frequency of reiteration. I have often been amuſed with their miſtakes. Though the eyes of flies conſiſt of numerous lenſes, ſo ſituated that they can ſee objects all around them; yet theſe lenſes are ſo minute and ſo convex, that they can perceive objects at ſmall diſtances only. When the males are roaming about in queſt of females, it not unfrequently happens, in the keenneſs of reſearch, that two males rencounter: As ſoon as the mutual miſtake is perceived, each makes a ſudden *ſnapping* kind of *noiſe*, as if they were ſpitting in one another's faces, and then run off in purſuit of more ſuitable mates.

Some ſpiders, when they wiſh to have ſenſual intercourſe, have a ſingular method of communicating their deſires. A ſpider, who wants a mate, has a mode of *ſtriking* againſt the wall or wood where ſhe has ſettled. She firſt gives nine or ten gentle blows, re-

ſembling, but ſomewhat quicker and louder, the vibrations of a watch; after which, ſhe remains ſome time ſilent, as if waiting for a reſponſe; if ſhe receives none, ſhe repeats the ſame *ticking noiſe*, by what means it is not perfectly known, at intervals of about an hour or two, reſuming this exerciſe and reſting alternately both during the day and the night. After theſe amorous *ſollicitations* have been continued two or three days, if no lover makes his addreſſes, probably becauſe none are within the reach of hearing, ſhe changes her ſituation, till ſhe receives an anſwer from a neighbouring mate, who makes preciſely the ſame kind of *noiſe*. If they are mutually pleaſed with each other, the *converſation* becomes briſker, and the beatings more frequent, till, at laſt, the approach is ſo near, that the two *ſounds* are confounded. In a very ſhort time, a deep ſilence takes place, when it is reaſonably ſuppoſed that the intentions of Nature are accompliſhing *.

This chapter ſhall be concluded with a few general remarks. With regard to the *language* of beaſts, a few examples have been ſelected from

* Amuſement philoſophique ſur le language des Beſtes, par G. H. Boujeant, p. 118. Father Boujeant, as appears from his writings, was a man of conſiderable learning and ingenuity. He was alſo an acute obſerver of the operations and oeconomy of Nature. He ſupported his ideas, concerning the relative *underſtanding* and *language* of *beaſts*, with great ſpirit and ability. But fanatical, or, which is the ſame thing, ignorant individuals, and, at laſt, the *Romiſh church*, were alarmed. Boujeant was himſelf a Jeſuit; and, when called to account for his doctrine, like a gentleman of the profeſſion, in a ſecond edition, he not only *recanted* ſolemnly all his opinions on the ſubject, but acknowledged them to have been *deluſions of the Devil!* To augment this literary, or rather *religious* farce, the very ſame opinions and reaſonings are repeated in the ſubſequent edition, accompanied with the ſigned *recantation* of the author! The diffuſion of ſcience, ſo often attempted to be ſuffocated by *prieſts*, though, to the diſgrace of human nature, both an antient and a modern practice, exhibits a dreadful picture of what are called *the Lords of the Creation!*

from the four great claſſes of Quadrupeds, Birds, Fiſhes, and Inſects. To have enumerated more, would not only have tired the reader, but led me far beyond my intended limits. From the few ſpecimens I have given, it is apparent, that Nature, in this, as well as in every other of her operations, ſupports and conducts her ſyſtem of animation by univerſal and intelligent laws. On man ſhe has beſtowed three ſpecies of language, namely, *natural* language, the language of *geſture*, and, what is ſtill ſuperior, the faculty of inventing and employing *artificial* language. But the moſt diſtinguiſhed of the brute animals are limited ſolely to the two former modes of communicating to each other their various feelings and deſires. The *language* of the inſect tribes ſeems to be ſtill more limited. Their *converſation* is chiefly carried on by various vibrations of their wings, and by ſimilar inſtruments; but ſtill theſe ſimple modes of expreſſion, by whatever motives they are produced, are perfectly underſtood, which is the ſole end and intention of all *language*.

One very ſingular obſervation remains to be made. Contrary to what almoſt univerſally takes place in the human ſpecies, the *females* of the inferior animals are not ſo *loquacious* as the *males*. This remarkable difference, if we ſcrutinize impartially the intentions of Nature, will be found, like all her other intentions, to be productive of the wiſeſt and moſt beneficent purpoſes. Among thoſe brute animals who *pair* or *marry* by mutual ſelection, and particularly almoſt the whole of the feathered tribes, when not corrupted by domeſtication, the *language* of the *males* is more extenſive and more frequently repeated, than that of the *females*. It is for this reaſon, that, in purchaſing ſinging birds, great attention is paid to thoſe characters which diſtinguiſh the *males* from the *females*, the latter being conſidered as comparatively *mute* and uſeleſs. When the female thruſh,

or

or blackbird, is brooding over her eggs, the male ſits upon a neighbouring tree; and, when no danger appears, he tells her, in melodious and encouraging ſtrains, not to be afraid, becauſe he is keeping the ſtricteſt watch. But when he perceives the too near approach of man, of birds of prey, or of any other rapacious animals, he inſtantly changes his addreſſes to her. Inſtead of his former ſoothing notes, he flies from branch to branch, or from tree to tree, uttering diſmal, alarming, and harſh *cries*. In this manner he tells her to beware of the enemy. When the danger is greatly increaſed, by a ſtill nearer approach, the male again changes his *language*: He then, by quick and precipitate *ſounds*, commands her to *fly*, and to ſave herſelf even in preference to her eggs or her defenceleſs brood.

Here the intentions of Nature as well as the neceſſity of a varied though limited *language*, are evident both to our ears and eyes; for, on ſuch occaſions, the *ſounds* are uniformly accompanied with the moſt expreſſive *geſtures*. When boys are about to carry off a neſt of young birds, both parents, notwithſtanding their natural dread of man, which is too often augmented by cruelty, make a much nearer approach than at any other time. Their almoſt invincible attachment to their offſpring ſeems, in a great meaſure, to deprive them of the principle of ſelf-preſervation. Their *cries* are low, mournful, and not unfrequently reſemble thoſe uttered by human beings when placed in ſimilar circumſtances. But, when deſpair removes all hope, another change of *language* is exhibited. Both parents then fly round the aſſailant, ſcreaming and uttering threatening cries; and ſometimes they even attempt to repel the ſpoiler.

When a boy, I carried off a neſt of young ſparrows about a mile from my place of reſidence. After the neſt was completely removed, and

while

while I was marching home with them in triumph, I perceived, with ſome degree of aſtoniſhment, both parents following me, at ſome diſtance, and obſerving my motions in perfect ſilence. A thought then ſtruck me, that they might follow me home, and feed the young according to their uſual manner. When juſt entering the door, I held up the neſt, and made the young utter the *cry* which is expreſſive of the deſire of food. I immediately put the neſt and the young in the corner of a wire-cage, and placed it on the outſide of a window. I choſe a ſituation in the room where I could perceive all that ſhould happen, without myſelf being ſeen. The young animals ſoon *cried* for food. In a ſhort time, both parents, who underſtood the language as well as the peculiar *voices* of their mutual offspring, having their bills filled with ſmall caterpillars, reſorted to the cage, and after *chatting* a little, as we would do with a friend through the lattice of a priſon, gave a ſmall worm to each individual. This parental intercourſe continued regularly for ſome time, till the young were completely fledged, and had acquired a conſiderable degree of ſtrength. I then took one of the ſtrongeſt of them, and placed him on the outſide of the cage, in order to obſerve the conduct of the parents after one of their offspring was emancipated. In a few minutes, both parents arrived, loaded, as uſual, with food. They no ſooner perceived that one of their children had eſcaped from priſon, than they fluttered about and made a thouſand *noiſy* demonſtrations of *joy* both with their wings and their *voices*. Theſe tumultuous *expreſſions* of unexpected happineſs at laſt gave place to a more calm and ſoothing *converſation*. By their *voices* and their *movements*, it was evident that they earneſtly entreated him to follow them, and to fly from his preſent dangerous ſtate. He ſeemed to be impatient to obey their mandates; but, by his *geſtures* and the feeble *ſounds* he uttered, he plainly told them that

that he was afraid to try an exertion he had never before attempted. They, however, inceſſantly repeated their *ſollicitations*; by flying alternately from the cage to a neighbouring chimney top, they endeavoured to ſhow him how eaſy the journey was to be accompliſhed. He at laſt committed himſelf to the air, and landed in ſafety. Upon his arrival another ſcene of clamorous and active joy was exhibited. Next day, I repeated the ſame experiment by expoſing another of the young on the top of the cage. I obſerved the ſame conduct with regard to the remainder of the brood, which conſiſted of four. I need hardly add, that not one, either of the parents or children, ever afterwards reviſited the execrated cage.

We have already ſeen, and every body knows, that in general, the *males* of the inferior animals are more *loquacious* than the *females*. But, in the human ſpecies, it is likewiſe an unqueſtionable fact, that the *females* are much more talkative than the *males*. It is even remarkable, that *female* children, though of the ſame family, and receiving the ſame inſtructions and example, acquire the faculty of *ſpeaking* one year, and ſometimes two, ſooner than the *males*.

We ſhall now endeavour to inveſtigate the intentions of Nature in creating ſuch a marked diſtinction.

In all ages, and in all regions of the earth, the early education and management of children have neceſſarily devolved upon the mothers. For this important taſk, they are much better qualified, both in the ſtructure of their bodies, and in the diſpoſitions of their minds, than the males. The connection between the mother and child begins long before it becomes an object of attention to the father. By a thouſand circumſtances, which mothers only know, and

ſometimes

ſometimes attempt, though obſcurely, to deſcribe, they contract an affection for a ſtill inviſible being. After the child is uſhered into the world, the curioſity and the ſympathetic joy of the father, are excited. He, accordingly, exerts himſelf to render the condition both of the mother and child as happy as poſſible. To ſupport the child with a mild but nutritive food ſecreted from the blood and other juices of the mother, Nature has provided her with a wonderfully complicated ſyſtem of veſſels, or lacteal pipes, which all terminate in the nipples of her breaſts. To theſe nipples the infants inſtinctively apply their mouths, and, by ſuction, create a vacuum. The preſſure of the external air upon the breaſt, or collection of tubes filled with milk, forces them to diſcharge their contents into the mouth of the child, who continues to ſwallow it till its ſtomach is ſatisfied. During this tender and precarious ſtate of exiſtence, the anxious and perſevering attention of the mother, makes her chearfully endure many toils and hardſhips, under which ſhe would often ſink, were ſhe not, on ſuch occaſions, almoſt preternaturally ſupported by mere ſtrength of affection.

After the child has arrived at the age of two or three months, and, in ſtrong and healthy children, much earlier, or as ſoon as it is capable of giving a tranſient attention to particular objects, then the exertions of the mother are almoſt perpetual. Her ſole object is to pleaſe by little amuſements which ſhe endeavours to accommodate to the weak, but gradually augmenting capacity of the infant. The chief inſtruments which ſhe addreſſes are the *eyes* and *ears*. To the *eye* ſhe preſents ſhining or luminous objects with which children are very early delighted; and, at the ſame time, repeatedly mentions the *names* of the particular objects. Thus, by habit, the *natural volubility* of female tongues is greatly improved. I have often

often been amazed at the dexterity and quickneſs of mothers and nurſes when endeavouring to pleaſe fretful children. They hurry the child from object to object, in order to diſcover if any of them arreſts its *eye*. If this attempt does not ſucceed, they have recourſe to other expedients. The *ears* of all infants are delighted with any loud *noiſe*. The mother, who wiſhes to appeaſe the fretfulneſs, or even to keep up the ſpirit and chearfulneſs of the child, toſſes it about in her arms, ſings, and talks alternately; and, on ſuch occaſions, it is aſtoniſhing to obſerve the quickneſs of her tranſitions from one ſpecies of incomprehenſible jargon to another. Still, however, ſhe goes on either *rattling* with her *tongue*, or making a *rattling noiſe* on tables, chairs, &c. A perſon who had never attended to theſe ſcenes, which are ſo often exhibited by a ſprightly mother and a ſprightly child, would be apt to conclude, that both were proper inmates for a bedlam. Theſe are well known to be univerſal facts; and we ſhall now endeavour to ſhow their utility.

It is a very antient adage, that Nature does nothing in vain. To women ſhe has given the talent of talking more frequently, as well as more fluently, than men: She has likewiſe endowed them with a greater quantity of animation, or what is commonly called *animal ſpirits*. Why, it may be aſked, has Nature, in this article, ſo eminently diſtinguiſhed women from men? For the beſt and wiſeſt of purpoſes. The principal deſtination of all women is to be mothers. Hence ſome qualities peculiar to ſuch a deſtination muſt neceſſarily have been beſtowed upon them. Theſe qualities are numerous: A ſuperiour degree of patience, of affection, of minute, but uſeful attentions, joined to a facility of almoſt inceſſant *ſpeaking*.

Here, however, I muſt confine my obſervations to the laſt conſpicuous

cuous and eminent accompliſhment. To be occupied with laborious offices, which demand either bodily or mental exertions, and not unfrequently both, is allotted to the men. Theſe cauſes, beſide their comparative natural taciturnity, totally incapacitates them for that loquacity which is requiſite for amuſing and teaching young children to *ſpeak*. But the employments of women are of a more domeſtic kind. Houſehold affairs, and particularly the nurſing and training of children, are fully ſufficient to engroſs their attention, and to call forth all their ingenuity and active powers. The *loquacity* of women is too often conſidered, by poets, hiſtorians, and by unthinking men, as a reproach upon the ſex. Men of this deſcription know not what they ſay. When they blame women for *ſpeaking much*, they blame Nature for one of her wiſeſt inſtitutions. Women *ſpeak much*. They ought to *ſpeak much*. Nature compels them to *ſpeak much*; and, when they do ſo, they are complying religiouſly with one of her moſt ſacred and uſeful laws. It may be ſaid, that *ſome men* talk as *much* as women. Granted. But beings of this kind, I deny to be *men*. Nature ſeems to have originally meant them to be *women*; but, by ſome croſs-accident, as happens in the production of *monſters*, the external *male form* has been ſuperinduced upon a *female ſtock*.

CHAPTER VIII.

Some Remarks on the Comparative Pleaſures and Suffering of Animals.

THERE are two great ſources of animal pleaſure and pain. The one ariſes from *mental*, and the other from *corporeal* cauſes. In proportion to the extent of intellectual powers in animals, the variety and the intenſeneſs of their pleaſures muſt be augmented. I wiſh the reverſe were not equally true. Man, who ſtands at the head of all the animated beings of which we have any knowledge, derives the moſt extenſive, variegated, and delicate ſpecies of pleaſure from natural genius, eſpecially when improved and illuminated by ſcience, by literature, and by impartial, but acute obſervation. The means, however, of acquiring theſe accompliſhments, are often productive of the greateſt human *calamities*. They cannot be attained without much ſtudy and reading. But ſtudy and reading imply a ſedentary life; and a ſedentary life gives riſe to conſumptions, to the ſtone, to the gout, to want of appetite, and, of courſe, to every evil which hell can invent, or poor mortals ſuffer.

But

But let us take a view of the enjoyments procured by the acquiſition of knowledge, and by a proper culture of the mind. Every ſtep we advance, from the very commencement of our progreſs, affords pleaſures which are totally unknown, and even incomprehenſible to the ignorant and too commonly vicious part of mankind, which unfortunately includes much more than nine-tenths of the ſpecies.

When about five or ſix years of age, our ſole delight conſiſts of rambling about, flying from one external object to another with often an unmeaning rapidity, and without perceiving, that, by this reſtleſs activity, we are laying up ample ſtores for future reflection. Nature, in her operations, has ſeldom one intention only in view: While ſhe is thus early ſtimulating us to gratify curioſity, or, in other words, to enjoy pleaſures which are perpetually changing their forms and modes of impreſſion upon the ſoft and ductile mind, ſhe is, at the ſame time, extending and ſtrengthening the body by the movements which theſe exertions neceſſarily require. The pleaſures reſulting from the acquiſition of ideas by the inſpection and examination of new external objects, from the age mentioned above, proceed with amazing rapidity. But, after this period, in what are called *civilized*, or rather *artificial* ſocieties, the natural current of the mind is checked, and turned into very different channels. To read, to write, to acquire *dead* or *foreign languages*; and, if the deſtination be ſtill higher, geometry, and ſpeculative knowledge of every ſpecies, are made the principal objects of a young man's attention. This ſevere check is, in general, too early given. At the very time when young minds are eagerly inveſtigating even the *minutiæ* of Nature, as inſects, reptiles, and, when a little farther advanced, birds and quadrupeds of different

different ſpecies, they are prematurely hurried on, to the moſt abſurd and prepoſterous of all ſtudies, namely, that of *dead* and *foreign languages*, long before they underſtand, to any extent, their *native tongue*.

Some ſmall portions of the antient *hiſtorical* compoſitions may ſometimes be partially underſtood, and even reliſhed by ſchool-boys. But what are the ſentiments which ſtrike in the moſt forcible manner the unſuſpicious, and, as yet, uninformed minds. They are of the moſt diabolical kind. *Animoſity*, *battles*, *treachery*, *cruelty*, and *murders!* The ſucceſsful perpetrators of theſe horrid crimes are celebrated, both by their own *hiſtorians*, and by unthinking *pedagogues*, under the grand appellation of HEROES! What was the renowned *Alexander?* A *great Hero?* And what is a *great Hero?* An unrelenting *butcher* of his own *ſpecies*! Such was ALEXANDER, ſuch was CÆSAR, and ſuch were all *the ſimilar vagabonds*, *thieves*, and *murderers* of antiquity. Theſe men, however, are exhibited by our *teachers*, as glorious examples of human *virtues!* What monſtrous *leſſons* to young and tender minds! But, if our *teachers* were wiſer than they generally are, the hiſtorical compoſitions of the antients would afford them the fineſt topics for inculcating every ſpecies of moral duty, and of moral feeling, upon the minds of youth. Patriotiſm, love of liberty, and bravery in the defence of the natural rights of man, when tempered with moderation and humanity, and, if properly explained, enforced, and illuſtrated by the numerous and ſplendid characters which antiquity occaſionally affords, would not only excite attention, but expand the mind, and give it virtuous impreſſions which no time could ever efface.

I mean not to depreciate *claſſical learning*. I only complain of a moſt abſurd and hurtful mode of education, which is, it may be ſaid, *univerſal* in Scotland. Not to mention the *maſters* of different mechanical employments, *journeymen ſhoemakers*, *taylors*, *weavers*, *carpenters*, *bakers*, *maſons*, *bricklayers*, &c. uniformly ſend their children, when at the age of ſeven or nine, for the ſpace of four or five years to learn *Latin* at *grammar* ſchools! During this time, the poor boys are forced to attend the ſchool, and not unfrequently whipped into the repetition of ſome *Latin vocables*, which are never to be of any uſe to them during life. For, after performing this, to them, uſeleſs, painful, and dreary taſk, the thread is inſtantly cut, and they are hurried into apprenticeſhips, and, of courſe, into the buſineſs of life, without underſtanding either their *own*, or any other *language*. The progreſs of Nature may, it is true, be ſometimes checked, but never entirely ſtopped. During the hours of receſs from ſcholaſtic diſcipline, ſhe reſumes her empire, and by her irreſiſtible power, obliges the children to friſk and romp about, and to enjoy thoſe various and pure pleaſures which reſult from activity and amuſement. But, theſe enjoyments are no ſooner over, than the abhorred ideas of unnatural confinement, and of a conſtrained attention to *jargon*, which, to them, is completely unintelligible, inſtantly recur, and harraſs and terrify their imaginations.

I have hitherto limited my remarks to *languages* alone. But, with regard to ſentiment, the motely *chaos* becomes doubly *dark*. Of battering rams, ſpears, ſwords, ſhields, and other warlike inſtruments, ſome idea may be formed. But the political views of commanders, the various marches and counter marches of armies, of detached parties for the purpoſes of foraging, or of obſerving the motions and probable intentions of the enemy, and the means employed to ren-

der

der theſe intentions abortive, muſt be perfectly incomprehenſible to ſchool-boys, who do not know one inch of the countries where ſuch operations are tranſacting. It will be ſaid, perhaps, that all theſe difficulties may be obviated by proper *maps* and deſcriptions. To young men farther advanced in years, and who are deſtined to ſome learned profeſſion, or to the education which every gentleman ought to receive, *maps* and deſcriptions are excellent ſources of information. But, to ſchool-boys, at the age I ſpeak of, *maps* and deſcriptions convey no ideas of the countries they are intended to repreſent. *Globes*, it may be thought, will remove all objections of this kind. *Globes*, however, only augment the obſcurities ariſing from *maps*, when attempted to be thus prematurely obtruded upon minds totally incapable of underſtanding the principles upon which either of them are conſtructed. The names of countries, of ſome rivers, and chief towns, like *Latin vocables*, may, by the mere exertions of memory, and of perſeverance, be mandated, and repeated, as the words and ſhort ſentences which *parrots* are taught to expreſs. But, by theſe exerciſes, no new ideas are acquired; nor are thoſe which may have formerly been in ſome meaſure acquired, either illuſtrated or expanded. The *fruitleſs* and *painful* labours, however, which ſuch prepoſterous conduct in managing the early education of youth produce, are immenſe, and truly ridiculous.

Theſe and ſimilar obſervations relate principally to *proſe* compoſitions. But, what are we to ſay of *poetry*, the language of which is highly *figurative*, and the *ſentiments* and alluſions are derived from every object of nature and of art, which can ſtrike the imagination of the poet? To read ſuch works of genius and of learning with any degree of intelligence, often baffles the experience, the induſtry, and the abilities of our moſt acute commentators. This remark is appli-

cable, in part, to every ſpecies of poetry, but acquires a redoubled force with regard to that ſpecies called *epic*. Beſide the various deſcriptions and alluſions derived from natural and artificial objects, what goes under the ſtrange appellation of *machinery*, is almoſt perpetually introduced. Not contented with *heroes* and brave *men*, in deſcribing battles and human exertions, *gods* or *devils* muſt interfere in every hoſtile conteſt. In the Heathen mythology, the number of gods and goddeſſes is as infinite as their attributes and deſtinations. Every nation, every town, every mountain, every river, and many principal families, and even individuals, were ſuppoſed to be the favourites of particular divinities, by whom they were ſuperintended, and protected, on all critical emergencies, from danger and death. When two heroes met and commenced a furious combat, if one of them was about to fall, to prevent the deadly blow, a *god* or *goddeſs* inſtantly ſtept forward to his aſſiſtance, and, by ſome ſilly or abſurd miracle, ſaved him from impending deſtruction! BUTLER, that prince of humour and of wit, ridicules, in the fineſt ſtrains, the *machinery* employed by ancient as well as modern poets. When two of his renowned heroes were about to engage, not with ſwords, but with fire-arms, in the moment of danger, he makes PALLAS interpoſe to ſave her favourite, in the following ludicrous manner:

> But PALLAS came in ſhape of *ruſt*,
> And 'twixt the ſpring and hammer thruſt
> Her *Gorgon* ſhield, which made the *cock*
> Stand *ſtiff*, as 'twere transformed to *ſtock* *.

The ſplendid and beautiful deſcriptions of many natural objects are not more intelligible to mere boys than the machinery of *gods*, of *goddeſſes*, of *angels*, or of *devils*. *Amaranthine* bowers, *myrtle* groves,

* Hudibras, canto 2. line 781.

groves, tombs covered with the diſmal *cypreſs*, crowns of *laurel*, the deadly *nightſhade*, the *cedar* of Lebanon, and a thouſand ſimilar names of objects, are equally unknown to the *maſter*, to the *ſchool-boy*, and often to the very *poets* who uſe them in their compoſitions. When the names and deſcriptions of plants happen to occur in the reading either of proſe or verſe, it would be no difficult taſk, particularly in the ſeminaries of Edinburgh, where we have one of the moſt extenſive and beſt repleniſhed *botanic* gardens in Britain, for *maſters* to procure *ſpecimens* of almoſt every vegetable that is mentioned by the hiſtorians and poets of antiquity. A ſingle inſpection of ſuch ſpecimens would elucidate many paſſages in claſſical authors more completely than all the definitions which human ingenuity can invent. Beſides, this mode of explaining particular parts of the Claſſics would have another happy effect. It would not only give immediate pleaſure to boys, but create a habit of attention to the productions of Nature with which we are perpetually ſurrounded, and perpetually overlook.

But, ſay our *pedagogues*, for an explanation of all ſuch generic or ſpecific *names*, conſult your *dictionary*. We ſhall do ſo; and take a few examples from that of *Ainſworth*. AMARANTHUS, *everlaſting, a flower which never fadeth!* CUPRESSUS, *a cypreſs-tree!* MYRTUS, *a myrtle-tree!* LAURUS, *the laurel or bay-tree!* CIRCÆA, *the herb called night-ſhade!* MORUS, *a mulberry-tree!* MERCURIALIS, *the herb called Mercury!* MESPILUS, *a medlar-tree!* MANDRAGORAS, *an herb called mandrake!* MENTHA, *the herb called mint!* AMYGDALA, *an almond-tree!* PLANTAGO, *plantain!* LEUCOGRAPHIS, *an herb good for thoſe who ſpit blood!* I will not diſturb my readers with more ſpecimens of ſimilar unmeaning *explanations*,

or rather no *explanation* at all; for they convey no ideas whatever. In almoſt every page of our common dictionaries, whether Latin, Engliſh, French, &c. examples of ſuch *jargon* are to be found. Our Lexicographers, however, not unfrequently deſcend ſtill lower, and, inſtead of abſurd definitions, or ſubſtituting Engliſh for Latin names, in which they are likewiſe *often* wrong, content themſelves with barely ſaying, the *name* of a *tree!* the *name* of a *plant!* the *name* of an *herb!* the *name* of a *precious ſtone!* the name of a *four-footed beaſt!* *&c.*

Are theſe the ſources from which *boys*, or even *men*, are to derive information concerning the productions of Nature? But, it is much to be lamented, that, in general, our *pedagogues* themſelves are unqualified to uſe the proper reſources, and, conſequently, muſt be equally ignorant as the pupils they are attempting to inſtruct. To boys the taſk of learning dead languages is ſufficiently hard and laborious. But, when ordered to read paſſages where natural objects of various kinds frequently occur, in the explication of which neither their *dictionaries* nor their *maſters* can afford the ſmalleſt aſſiſtance, the *drudgery* of groping in the *dark* becomes often ſo *painful*, that many boys leave the ſchool perfectly *diſguſted*, and drop for-ever ſuch unprofitable, and, to them, unintelligible ſtudies.

But, notwithſtanding theſe, in particular inſtances, perhaps unavoidable *difficulties*, when ſomewhat farther advanced in years, if young men, by perſevering induſtry, joined to a partial knowledge of ſome branches of ſcience, are once enabled to read and to reliſh the writings of ancient or of foreign authors, then the *pleaſures* reſulting from the peruſal of them more than counterbalance the *pains* ſuffered in the acquiſition of that ſpecies of knowledge. Some of the

the above remarks are equally applicable to the ſtudy of ſcience and of art. But, as the principles of the arts and ſciences are fixed, and ſeldom ſubject to cavil or miſrepreſentation, whenever theſe ſimple and natural principles are properly explained and underſtood, the *pleaſures* ariſing from their application are very great. As formerly remarked, premature *ſtudies* are uniformly *painful;* becauſe ſuch young minds are incapable of comprehending the principles, and far leſs the application of them to arts or ſcience. *Grammar*, the firſt ſcience obtruded upon, I may ſay, *infantine* intellects, is one of the moſt abſtract and intricate. To attain even a tolerable knowledge of grammar, whatever be the language, (for the general principles are, and muſt be the ſame,) preſuppoſes a conſiderable range of intuitive facts, as well as of acquired ideas.

When theſe difficulties, however, are once ſurmounted, and the mind is enabled to perceive the beauties and the utility of ſcience, its *happineſs*, which it hourly receives from a thouſand ſources, may be ſaid, as far as our preſent condition admits, to be complete. But a mind thus cultivated is by no means *ſatisfied.* Every new acquiſition, though attended with *pleaſure*, produces, at the ſame time, a number of *painful* ſenſations. In proportion as the mind is expanded by different kinds of ſcience, its deſire for farther and often impoſſible acquiſitions augments, and gives riſe to *painful* anxieties, which not unfrequently terminate in *dejection*, which is a ſpecies of *madneſs.*

We ſhall now trace the progreſs and feelings of a well informed mind, after it has engaged in the more ſerious and intereſting affairs of ſociety. Here a preliminary remark muſt be made. The more the mind has been ſtored with a variety of knowledge, the more

more *acute* are its *feelings*. It derives *pleaſure* from many ſources, of which the *vulgar* can have no idea. But, mark the reverſe. The cauſes of *pain* augment in more than a quadruple proportion. Of moſt of theſe the *vulgar* have not a conception; but they *torture* the feelings of what are called *refined minds*.

Buſineſs, of one kind or another, now becomes neceſſary; and an almoſt infinite ſeries of *pains* and of *pleaſures* are the unavoidable reſults. Mental or corporeal exertions, however laborious, we ſhall not conſider as abſolutely *painful;* for when theſe are paſt, and followed with ſucceſs, they are cauſes of the greateſt *pleaſures*. At this period of life, another ſource of *pleaſure*, as well as of *pain*, ariſes in an unexpected, and often involuntary manner. Both in the male and female ſex, peculiar and ſtrong attachments are formed. Marriage, in general, is the conſequence of ſuch attachments: But, with regard to the preſent ſubject, what are the common conſequences of marriage? *Children*, and a multitude of new *pleaſures* and *pains*. When in health, the *pleaſures* afforded by children are numerous and delightful; but, when *diſeaſe* comes, the account is more than balanced. A helpleſs infant tortured with *pain* is a moſt *excruciating* object. But, when a lovely child is, perhaps, ſuddenly torn from its mother's breaſt by *death*, the *painful* ſenſations excited by ſuch an event, *parents* alone can know. To proceed: When children have happily got over the common diſeaſes incident to that critical period of life, and have advanced to manhood, and engaged in different occupations, the *anxieties* of parents, inſtead of being *blunted*, become more *acute*. They then look forward, with redoubled *apprehenſion* and *affection*, to the probable ſucceſs or misfortunes of their offspring. When ſucceſsful, the *pleaſure* is great. But when, from negligence and vice, or even from unforeſeen misfortune,

tune, a contrary event takes place, the *painful* feelings of parents are not to be deſcribed. Parents not unfrequently, from a natural, but ſuperabundant affection, riſk more than their fortune with a view to bring their children reſpectably forward in the world, and to render them happy. Such conduct is fooliſh; but the folly is amiable. A ſingle ſlip, however, in children too frequently produces the greateſt *miſery* to both them and their parents. In all ſuch caſes, contrary to the common adage, *evil comes out of good.*

We have hitherto given ſlight ſketches of the *pains* and *pleaſures* ariſing from highly *cultivated* minds; and ſhall now deſcend to what are called the *vulgar* and uninformed.

The *vulgar*, in all nations and conditions of ſociety, conſtitute the great body of the human race. Born and brought up by poor and ignorant parents, their children, of neceſſity, are excluded from every ſource of ſuperior knowledge. Theſe ſeemingly unfortunate circumſtances, it ſhould appear, would be productive of the greateſt *miſery*. But Nature, ever attentive to the general *happineſs* of her productions, has decreed that the *vulgar* ſhould, at leaſt, be as *happy* as the *learned*. They are excluded from many ſources of real *pleaſure* which the learned poſſeſs. But they know nothing of ſuch defects; and what they do not know cannot poſſibly give them *uneaſineſs*. They labour with chearfulneſs, and eat their food with an appetite which no riches can purchaſe. Every moderate animal *enjoyment* is within their reach; and their rank in ſociety precludes them from many *painful* circumſtances which opulence alone can procure. Their ſleep is ſound and refreſhing; and, as their food is generally light and eaſily digeſted, they are ſeldom troubled with thoſe *diſagreeable dreams* which *torment* the luxurious, whoſe ſtomachs

machs are not only feeble, but often overloaded with *dainties*, and ſtill oftener with *intoxicating liquors*. The vulgar are not *harraſſed* with ambition, nor anxiouſly ſolicitous concerning *future* proſpects or *future* events. They *enjoy* the preſent moments as they fly, and *rely* upon the continuance of ſimilar ſources of happineſs.

In their domeſtic affairs, the *vulgar* are exempted from many *evils* which too frequently *perplex* the imagination, and *hurt* the feelings of thoſe who occupy the higher ſtations of life. Of the many *vexatious* circumſtances ariſing from the *negligence*, the *petulance*, the *thefts*, and the long train of *vices* daily committed by *ſervants*, the *vulgar* can never form an *idea*, and, of courſe, cannot *feel* the *uneaſineſſes* which they occaſion. The *vulgar* are likewiſe exempted from a thouſand *reſtraints* and ceremonious *etiquettes*, which cramp the *freedom*, occupy fruitleſsly the *attention*, and give riſe to numberleſs *anxieties* and *diſappointments* among what are called *people of faſhion*. The *pleaſures* of the *vulgar*, though comparatively few, are more genuine and unadulterated, becauſe they are leſs *artificial*, and, of courſe, unaccompanied with *emulation* or *jealouſy*, and ſeldom followed with *regret* or mental *reproach*. The *pleaſures* of the *great* are generally tumultuary, exhauſt the ſpirits, and produce *languor* and *compunction*, two painful feelings which mutually augment each other.

Upon the whole, to men of obſervation and reflection, it muſt be apparent, that the laborious *pleaſures* of the *vulgar* are ſuperior to the *luxurious*, and, I may ſay, *painful pleaſures* of the *learned* and *opulent*.

Proceeding on our plan, we ſhall next conſider the condition of what are called *brute animals* with regard to *pleaſure* and *pain*.

Brutes

Brutes are exempted from a thouſand ſources of *pain* which afflict even the *vulgar* of the human ſpecies. Brutes have not an idea of *futurity*; but they *enjoy* every moment of their exiſtence, which, though, in moſt of them, not ſo long protracted as that of man, is, in general, a continued ſeries of *pleaſures*. I ſpeak not of thoſe animals, or rather ſlaves, called *domeſtic;* for theſe, to the diſgrace of the human ſpecies, are too often overloaded, beat, ſtarved, and maltreated in a ſhocking manner; but I ſpeak of animals in that ſtate which the God of Nature formed them.

The abſence of *pain* is certainly a ſpecies of *pleaſure*. When nothing *hurts* either the *body* or the *mind*, *pleaſing* ſenſations muſt neceſſarily follow. The mere conſciouſneſs of exiſtence is *pleaſure*. If brute animals are excluded from the *pleaſures* of *imagination*, they are, at the ſame time, exempted from innumerable *tortures* to which it gives riſe. Many of them, wherever they ſtroll, find their natural food under their feet. Others, of a more rapacious kind, are obliged to hunt for their ſubſiſtence. Their food, of courſe, is more precarious. But Nature has endowed them with the faculty of ſuſtaining, with impunity, long abſtinence. She has likewiſe beſtowed upon them courage, artifice, patience, and alacrity both in attack and defence.

With regard to bodily *pain*, ariſing either from diſeaſe or external injury, the *brute* muſt ſuffer as much as the *man*. Brutes, however, though they *ſuffer* from theſe cauſes, are not *tormented*, like man, with the *terrors* of their conſequences. They have not a conception of *death*, far leſs of *future* exiſtence, and, what is infinitely worſe, of *eternal* and excruciating *torture*. But, to many of mankind, theſe are perpetual ſources of *miſery* and of *terror*.

Hitherto I have been talking of the comparative *pains* and *pleaſures* of the larger animals. I ſhall now hazard a few remarks with regard to the condition of the more minute tribes.

Inſects are animated beings as well as men and quadrupeds. But it is extremely difficult to form proper ideas of their pains or pleaſures. If we may judge, however, from the quickneſs and vivacity of all *winged* inſects, we ſhould reaſonably conclude that every inſtant of their exiſtence is attended with *pleaſure*. Their lives, eſpecially in their fly-ſtate, is ſhort; but, as a recompenſe, it is all *enjoyment*. They have their food, it is true, to ſearch for and procure; but, from the inſtruments which Nature has conferred upon them, they are enabled to extract nouriſhment from almoſt every vegetable and animal ſubſtance, and even from the earth and waters. In queſt of food, or of their proper mates, they are perpetually *active*; and *activity* itſelf is one of the principal ſources of *animal happineſs*. When *man*, whatever be the cauſe, loſes the ſprings of *activity*, from that moment he is *miſerable*. It is not unnatural, therefore, to conclude, that, whenever we ſee *activity* in the inferior animals, *happineſs* muſt be the conſequence.

The motions of thoſe *inſects* which are not furniſhed with wings are comparatively ſlow and languid; but we are not, from this circumſtance, warranted to infer that they are more *unhappy* than the winged tribes. Motion, whether quick or ſlow, requires *exertion*, and that exertion is not only *pleaſant*, but productive of vigour and of health. Still, however, when we conſult our own feelings, we are neceſſarily led to think, that the moſt *active* animals are the moſt *happy*. In the human ſpecies, an *active* mind *enjoys* life more completely than the *indolent* and *ſluggiſh*. *Sloth*, or the abſence of *activity*, is

real

real *pain*. But ſlow motion, in ſome of the inſect tribes, does not imply *inactivity*; becauſe, from their frame, that ſlowneſs of movement requires, perhaps, even greater *exertions* than the rapid motions of other ſpecies.

The ſluggiſh motion of earth-worms, and of ſnails, may, to us, ſeem to indicate great *labour*, and even *pain*. But, it ſhould be conſidered, that, if their movements are comparatively ſlow, their travels are proportionably ſhort; for their food is almoſt perpetually before them.

The great multiplicity of inſects, both in ſpecies and individuals, is often attended with no ſmall injury to man as well as to many other animals. As a counterpoiſe, however, their enemies are innumerable. Myriads of birds, &c. daily devour ten thouſand times the number of *inſects*, both of the winged and reptile kinds. A bird, in an inſtant of time, ſwallows a fly; and, in the ſame inſtant, its life is extinguiſhed, without feeling, perhaps, a ſingle *pang*.

This ſubject ſhall be diſmiſſed with a few remarks. From the facts and obſervations related above, it ſeems to be apparent, that Nature, through the whole of her *animated* productions, has diſtributed her *pleaſures* and her *pains* in an equitable manner. If man and the larger animals are occaſionally ſubjected to a greater number of diſeaſes than the ſmaller tribes, their lives are, in general, protracted to a much longer ſpace; and, of courſe, the *quantity* of their *enjoyment* is increaſed. Some ſpecies of birds, as eagles, parrots, &c. beſide the *pleaſures* ariſing from their natural *activity*, are very long-lived. Moſt of the ſmall birds, though they live not ſo long, are ſtill more *active;* and, of conſequence, their *happineſs* is proportionably augmented. The

lives of moſt inſects are very ſhort; but their *active enjoyments*, during their exiſtence, are almoſt perpetual. Thus, animals of every denomination appear to have nearly an equal portion of *happineſs* and of *pain* beſtowed upon them by the beneficent inſtitutions of Nature. Even *pain* itſelf is no inconſiderable cauſe of *pleaſure*; for, when abated or entirely removed, the *pleaſures* ariſing from theſe fortunate circumſtances are immenſe.

CHAP.

CHAPTER IX.

Of Poiſonous Animals.

POISON, it ought to be remarked, is a relative term. Subſtances which are deleterious or hurtful to one ſpecies of animals, afford the moſt ſalutary food to others. The bite of the common viper is very poiſonous, and its effects are various to man, as well as to many other animals. But broth made of vipers is often preſcribed by phyſicians in caſes of conſumption and of general weakneſs. I ſuppoſe, however, that the heads, which are the chief, or rather the only receptacles of the poiſon, are cut off before the animals are boiled; for FONTANA, that juſtly celebrated Naturaliſt, who made more experiments upon the nature and effects of poiſons than any man either before or after his time, has ſhown, that the venomous liquid, even when taken into the ſtomach, and without the intervention of any wound, is extremely dangerous and hurtful. REDI, and ſome other authors, maintain a contrary opinion. But FONTANA, with much probability, attributes theſe innocuous effects to the ſmallneſs of the quantities thrown into the ſtomach at one time.

The venom of all vipers, of which there are many ſpecies, when introduced, by means of a bite, into the bodies of men and other animals,

animals, is extremely hurtful, and, if not timely prevented, is certainly mortal. The Abbé FONTANA, anxious to diſcover a remedy to remove, or rather prevent, the dreadful effects of this animal poiſon, tried, often at the hazard of his own life, ſeveral thouſand experiments on this ſubject. In the courſe of theſe, he found, that oils, and particularly that of turpentine, were the moſt effectual in preventing the too often fatal effects of poiſoned wounds occaſioned by the bite of vipers. The beſt method of applying this remedy, he tells us from his own experience, which was great, is to foment the part affected with oil of turpentine as hot as the patient can conveniently bear, and to continue this application a long time. He thinks it alſo of uſe to keep the part affected immerſed in water, either pure or impregnated, with ſome of the neutral ſalts, or with quicklime. Theſe applications leſſen the pain and inflammation. He likewiſe found that vomits had ſome effect in preventing the danger, but cutting out the wounded part, as ſoon as poſſible after the accident, was always the moſt effectual remedy, becauſe it prevented the poiſon from being abſorbed into the general circulation of the maſs of blood, which infallibly produces death. The ſame method of care is practiſed with equal ſucceſs upon ſheep, horſes, and black cattle, who are much more liable, when browſing on heaths, to be wounded by vipers than the human ſpecies.

Upon this ſubject, a curious and extraordinary fact muſt not be omitted. That inſignificant and inactive inſect called the *freſh water polypus*, of all poiſonous animals, ſeems to poſſeſs the moſt powerful and active venom. Small water-worms, which the polypus is only able to attack, are ſo tenacious of life, that they may be cut to pieces without their ſeeming to receive any material injury, or to ſuffer much pain from the inciſions. But the poiſon of the

polypus

polypus inſtantly extinguiſhes every principle of life and motion. What is ſingular, the mouth or lips of the polypus have no ſooner touched this worm than it expires. No wound, however, is to be perceived in the dead animal. By experiments made with the beſt microſcopes, it has been found, that the polypus is neither provided with teeth, nor any other inſtrument that could pierce the ſkin *.

The *ſpider*, which feeds upon flies, waſps, and ſimilar inſects, is furniſhed with a very ſharp hooked forceps, placed near the mouth. With this weapon he ſeizes and pierces the fleſh of ſuch inſects as entangle themſelves in his web; and, at the ſame inſtant, by means of a ſmall white proboſcis, he infuſes a poiſonous juice into the wound, which, in a moment, kills the animal. This poiſon muſt be very active and deleterious; for flies, and many other inſects, may be mutilated by depriving them of their legs, wings, and even cutting their bodies through the very middle of the abdomen, and, in that condition, will ſurvive ſeveral days, as I have frequently experienced. I never proſecuted the experiment ſo far as to know whether any of the lopped off parts would be reproduced.

The poiſonous weapons of the *ſcolapendra*, or *centipes*, are ſomewhat different from thoſe of the ſpider. Its bite is ſo painful, eſpecially in the Eaſt Indies, as we are informed by BONTIUS, that it makes the patient almoſt mad. When the claws of its forceps are examined by a microſcope, on the upper ſide of each of them, near the point, a ſmall aperture appears, through which the venom is conveyed into the wound. Of the Eaſt India centipes, LEEUWENHOEK † had one ſent to him alive; and he found, that, by preſſing

* Abbé Fontana on Poiſons, vol. 1. p. 106. Tranſ.

† Continuatio Arcan. Natur. epiſt. 124.

preſſing the claw, a ſmall drop of liquor iſſued out of this aperture.

Stinging animals, of which the *ſcorpion* is the chief, likewiſe inſtil a liquor into the wounds they make. The poiſon of ſcorpions is more or leſs virulent in proportion to the heat of the countries they inhabit. In ſome parts of Africa, its effects are ſo dreadful, and theſe horrible reptiles ſo numerous, that LEO tells us, the town of Peſcara is annually almoſt totally deſerted by the inhabitants in the ſummer months; becauſe inevitable death is the conſequence of the ſcorpion's ſting *. Signor REDI, when reſiding at Florence, had ſeveral African ſcorpions ſent him from Tunis. They arrived in the month of November; and he irritated them to ſting pigeons, pullets, &c. without diſcovering the ſmalleſt ſymptoms of uneaſineſs in theſe animals. But, what is ſingular, on the approach of ſpring, one of the ſcorpions, which had remained no leſs than eight months without food, and the wound of whoſe ſting was formerly attended with no bad effects, ſtung to death two pigeons ſucceſſively. A third and fourth, however, though wounded in the ſame manner, received no injury. But the ſame ſcorpion, after being allowed to reſt all night, killed another pigeon next morning. At the point of the ſting, REDI often obſerved a ſmall drop of white liquor, which entered the animal's body along with the ſting. This liquid venom, it ſhould appear, is not ſecreted from the blood and other juices of the animal, during the cold months of winter. The operation of cold is alſo greatly aſſiſted by abſtinence from food. Benumbed with cold, and half-ſtarved for want of food, how is it to be expected that the animal's fluids ſhould retain their former vigour and activity, far leſs that they ſhould be able to afford a liquor

* Leo Hiſtor. Afric. lib. vi.

quor ſo highly exalted as to deprive other creatures of life? Like certain fluids of other animals, which are ſecreted in ſmall quantities only, the ſting of the ſcorpion, even in the hotteſt months of ſummer, after two or three attacks, is perfectly inoffenſive, till the expenditure of this deleterious liquor has again been replaced by the operation of food and of time.

In the hiſtory of the *ſcorpion*, a remarkable circumſtance muſt not be omitted. We are informed by gentlemen of veracity, who had lived ſeveral years in *Barbary*, that, when a ſcorpion is ſurrounded with a circle of burning coals or wood, and the animal begins to be pained with the heat, it runs about violently in queſt of ſome mode of eſcape; but, finding that impoſſible, it ſtrikes itſelf two or three times on the back parts with its ſting, by which wounds its life is immediately extinguiſhed. We are likewiſe told, that this is a common amuſement among the ſoldiers of Gibraltar, where theſe noxious animals abound. This ſelf-murder, produced by pain and deſpair, indicates two curious inſtincts; 1. That the ſcorpion is ſenſible of his dangerous ſituation; and, 2. That he knows the mode of getting quit of a painful and deſperate exiſtence. This fact likewiſe decides another controverſy, whether poiſonous animals of the ſame ſpecies can kill another by an infuſion of their venom. The ſame fact is exhibited by the viper. Dr HERMAN, when tranſporting three large vipers in one glaſs, two of them were killed during the voyage by fighting and biting each other with their poiſonous fangs; and the learned RHODIUS obſerved, at Padua, that two ſcorpions, which were put into the ſame glaſs, fought with their ſtings, and one of them firſt killed the other, and then devoured it.

The ſtructure of the ſtings of *bees*, *waſps*, *hornets*, &c. has been

accurately deſcribed by ſeveral authors, and particularly by HOOKE and REAUMUR. Even with the naked eye, a perſon may ſometimes perceive a bee diſcharge the venom from its ſting; which is rendered ſtill more perſpicuous by a common magnifying glaſs. As the ſtings of theſe, and many other ſmaller inſects, often produce inflammation and pain, theſe effects may be very ſoon prevented or removed by ſucking out the inſtilled poiſonous drop with the mouth; but, if this has been neglected, fomenting the part affected with warm oil and diſcutient ointments, as in the bite of the viper, ſeldom fails to be a complete cure.

We ſhall now make a few remarks upon the bite of that enormous ſpecies of ſpider denominated the *tarantula*. It is very frequent in, and infeſts that warm diſtrict of Italy called *Apulia*. BAGLIVI, a native of that country, and a well known and learned phyſician, publiſhed a long diſſertation on this ſubject *. After BAGLIVI, LUDOVICUS VALETTA, a Celeſtine monk of Apulia, favoured the world with a treatiſe concerning this dangerous ſpider †.

The *tarantula* is a ſpider of that ſpecies which has eight eyes and eight legs, four on each ſide, and three joints in every leg. From the mouth proceed two ſharp darts ſimilar to a hooked forceps, or the claws of a crab, by which the animal can eaſily pierce the ſkin; and, after the wound is inflicted, the tarantula, by means of a proboſcis ſituated between the claws of the forceps, inſtils a drop of a moſt active venom, which reſiſts the operation of the uſual *alexipharmic* medicines; for, notwithſtanding the repeated uſe of them, the patient is affected with a gradually increaſing melancholy, grows perfectly

* See Baglivi de Praxi Medica, et Diſſertationes, Romae, 1696.

† De Phalangio Apulo Opuſculum, Neapoli, 1706.

perfectly ſtupid and timorous, and, in a ſhort time, expires. By what accident or fortunate thought an almoſt certain cure for the bite of the tarantula was firſt diſcovered, it is of little moment to inquire. But it is an unqueſtionable fact, that *muſic* is the only effectual remedy. At the firſt ſound of a muſical inſtrument, if the tune happens to rouſe the attention and ſtrike the fancy of the patients, though lying motionleſs, as in a fit of apoplectic ſtupor, they gradually begin to move their hands and feet, and at laſt get up, and, for three or four hours, dance with wonderful vigour and agility, which occaſions profuſe ſweatings. They are then put to bed for a ſhort time, and afterwards renew their dancing with the ſame ſpirit and vehemence. Inſtead of being exhauſted by this violent exerciſe, the patients declare, and ſhow by their exertions, that, inſtead of fatiguing them, the more they dance they become the ſtronger and the more nimble. In this exerciſe, the perſons bit by the tarantula generally occupy twelve hours a day, and continue it for three or four days, when all ſymptoms of diſtreſs are completely removed. It is not every ſpecies of muſic which excites patients; for ſome are ſtruck with one kind, and ſome with another. One is rouſed with a flute, another with a timbrel; one with a harp, and another with the violin. The muſicians, accordingly, are obliged to make a variety of trials before they can accommodate their art to the minds of the ſufferers. But we are aſſured by REDI, MEAD, FONTANA, &c. that briſk and chearful tunes produce the moſt inſtantaneous and happy effects; but that ſlow and melancholy airs have not the ſmalleſt influence. Whilſt the *tarantali*, as they are called, or perſons who have been bit by the tarantula, are dancing to muſic, they ſeem to loſe all ſenſe of modeſty and decorum; they perform many ridiculous tricks, and talk in the moſt obſcene manner. Heat exalts, and, of courſe, augments the dangers ariſing

from every ſpecies of animal-poiſon. Apulia is the hotteſt diſtrict of Italy; and, accordingly, the bite of the tarantula there produces more violent effects than in any other part of that country. The inhabitants of Apulia, from the heat of the climate, conjoined, perhaps, with ſome other circumſtances, are generally meagre, paſſionate, witty, and, in an uncommon degree, ſubject to inflammatory diſeaſes, phrenſies, melancholy, and other ſpecies of madneſs. We are informed by Dr MEAD, who collected his facts from the moſt reſpectable authorities, that, in other countries, cauſes which produce only a ſlight melancholy, occaſion the moſt deplorable effects in Apulia. 'Women,' he remarks, 'in a *chloroſis*, ſuffer almoſt 'the ſame ſymptoms as perſons poiſoned by the tarantula do, and 'are cured the ſame way; and, in like manner, the venom of the 'ſcorpion does here, in effects and cure, agree very much with that 'of this ſpider *.'

From theſe, and many other inſtances of ſalutary effects of *muſic* in removing diſeaſes produced by animal-poiſons, it is amazing that this remedy is ſo ſeldom tried by our modern phyſicians. In many ſpecies of melancholy and madneſs, from whatever cauſes they originate, the effects of different kinds of muſic might at leaſt be tried. If a perſon labouring under a deep melancholy could be excited to dance with ſpirit, and even with ſome violence, profuſe ſweats would be induced, and, probably, as in caſes of mania occaſioned by the bites or ſtings of poiſonous animals, theſe ſweats would expel the noxious cauſe from the ſyſtem. Muſic might even be tried in the paroxyſms of madneſs. If it ſhould be found, which is by no means improbable, that muſic allays or cools the over-heated animal fluids, and, conſequently, the turbulence of the mind,

* Mead on Poiſons, p. 108.

mind, this cure would be infinitely more humane than the *coercions* of *ſtrait waiſtcoats*, *ſtripes*, &c. which are, perhaps, too commonly preſcribed even by the beſt phyſicians.

Ideas of this kind ſhould not be deſpiſed. The antients, with great wiſdom and ingenuity, employed *muſic* as a cure, or, at leaſt, as an alleviating remedy in almoſt every kind of *madneſs*. We are informed by a Jewiſh hiſtorian *, that SAUL, then King of the Jews, was afflicted with an *evil ſpirit* ſent from the LORD; that is, the man was *mad*. What I think exceedingly curious, and ſhows the general opinion among thoſe people concerning the ſalutary effects of *muſic* in mental diſeaſes, is, that even the *ſervants* of SAUL, when he was frantic, recommended *tunes* on the *harp* as the moſt effectual cure. The paſſage is ſo remarkable, that I cannot refrain from tranſcribing it. 'And SAUL's ſervants ſaid unto him, Behold now 'an evil ſpirit from GOD troubleth thee: Let our lord now com-'mand thy ſervants, which are before thee, to ſeek out a man who 'is a *cunning player* on an *harp*: And it ſhall come to paſs, when 'the evil ſpirit from GOD is upon thee, that he ſhall play with his 'hand, and thou ſhalt be well. And SAUL anſwered one of his ſer-'vants, and ſaid, Behold, I have ſeen a ſon of JESSE the Bethlehem-'ite, that is *cunning* in *playing*.—Wherefore SAUL ſent meſſengers 'unto JESSE, and ſaid, Send me DAVID thy ſon, which is with the 'ſheep. And JESSE took an aſs laden with bread, and a bottle of 'wine, and a kid, and ſent them by DAVID his ſon unto SAUL. 'And DAVID came to SAUL, and ſtood before him; and he loved 'him greatly, and he became his armour-bearer. And SAUL ſent to 'JESSE, ſaying, Let DAVID, I pray thee, ſtand before me; for he 'hath found favour in my ſight. And it came to paſs, when the 'evil

* 1. Samuel, chap. 16.

'evil ſpirit from GOD was upon SAUL, that DAVID took an *harp*, and 'played with his hand: So SAUL was *refreſhed*, and was *well*, and 'the evil ſpirit departed from him *.' This is all well; but, from the following part of the hiſtory, we learn that DAVID was not only *cunning* in playing on the *harp*, but that he was equally *cunning* in *politics*; for, in a ſhort time afterwards, he *harped* poor SAUL both out of his *kingdom* and his *life*.

The old Greeks and Romans ſeem to have underſtood the effects of *muſic* in alleviating and even curing particular diſeaſes. We are told by GALEN, an antient, and, to this day, a moſt celebrated phyſician, 'that ÆSCULAPIUS uſed to recover thoſe, in whom violent 'motions of the mind had induced a hot temperament of body, by 'melody and ſongs †.' PINDAR, in one of his odes, takes notice of the ſame happy effects produced by *muſic*; and Dr MEAD very properly remarks, that, from theſe and ſimilar facts, not only the notion but the term of *charming (a carmine)* ſeems to have derived its origin ‡. THEOPHRASTUS, in his Treatiſe on *Enthuſiaſm*, informs us, that *iſchiadic* pains were cured by the *Phrygian* melody. This ſpecies of muſic was performed upon the pipe, and was the moſt vehement and exhilarating that was known among the antients; for it ſometimes excited the hearers to what had the appearance of maniacal and furious exertions of body ‖, which perfectly correſponds with the effects of *muſic* in expelling the venom of the *tarantula*. Beſide the effects of muſic upon the minds of perſons labouring under certain diſeaſes, ſome of the antient phyſicians carried this practice

* 1 Samuel, chap. 16. verſe 15. to the end.

† De Sanit. Tuenda, lib. 1. cap. 8.

‡ Mead on Poiſons, p. 123.

‖ Bartholin. de tibiis veter. l. 1. c. 9.

tice farther, and placed the inſtrument upon the part affected. CAELIUS AURELIANUS denominates this application of muſic, *decantare loca dolentia;* and adds, that the pain is mitigated and often diſcuſſed by the tremblings and palpitations of the diſeaſed part *. AULUS GELLIUS mentions this ſame cure of *iſchiadic* complaints, and ſubjoins, from THEOPHRASTUS, 'that the muſic of a pipe, rightly 'managed, healed the bites of vipers †.'

APOLLONIUS tells us, that *muſic* cured diſtractions of mind, epilepſies, and many other diſtempers ‡. As to this fact, he is joined by DEMOCRITUS, who taught, that the *muſic* of *pipes* was the proper medicine for many diſeaſes ‖; which THALES of *Crete* confirmed by his practice. When ſent for by the LACEDEMONIANS to remove the peſtilence from them, he is ſaid to have done it by the operation of *muſic* §. All theſe inſtances ſhow, at leaſt, that *muſic* was very antiently employed as a remedy both in mental as well as corporeal diſeaſes. CAELIUS AURELIANUS aſcribes the invention of this cure to PYTHAGORAS, who ſettled and founded his ſect in that very part of Italy where the *tarantulae* are moſt frequent, which was then called *Graecia Magna*, and now *Calabria*.

With regard to the dreadful effects produced by the bite of a *mad dog*, we ſhall make only a few remarks. The terrible diſeaſe it occaſions is generally known by the appellation of *hydrophobia*, or *dread of water*. The wound from the bite of a mad dog, at firſt, differs not

* Morb. chronic. lib. 5. cap. 1

† Noct. Attic. lib. 4. cap. 13.

‡ Hiſtor. Mirabil.

‖ Apud Aul. Gell. loc. citat.

§ Plutarch. de Muſica.

not from that of any other animal, and heals as ſoon; for a conſiderable time often elapſes before any ſymptoms of madneſs appear. Inſtances are recorded where the diſeaſe was deferred till two, three, or ſix months after the wound was inflicted. I myſelf knew a caſe where the wound did not ſhow itſelf till full twelve months after the bite. This caſe was that of JAMES POLLOCK, a blackſmith and athletic perſon, in the ſuburbs of Edinburgh. As ſoon as ſymptoms of madneſs appeared, he was carried to the Royal Infirmary, where, in a few days, he died of an evident *hydrophobia*. GALEN tells us, that he ſaw a caſe of *hydrophobia* more than a year after the wound was received *. Dr MEAD, who had great practice as well as ſkill with regard to the effects of different poiſons, informs us, that he knew a caſe of this diſeaſe more than eleven months after the fatal accident. He adds, however, that the attack generally happens in thirty or forty days, and ſometimes, eſpecially in young people, in fifteen or ſixteen. The firſt approaches of this diſtemper are commonly diſcoverable by an acute pain in the part that had been wounded, which gradually extends to the adjacent parts, and is followed by a general laſſitude, and an uneaſineſs in the limbs. The patient then grows melancholy; his ſleep is diſturbed and unrefreſhing; he complains of faintneſs and of depreſſed ſpirits, and eſpecially of an oppreſſion at his breaſt; his pulſe intermits; his nerves and members tremble; he is affected with cold ſweats, a great ſickneſs, and loaths every ſpecies of food. Though he feels an inward heat and thirſt, and wiſhes to drink; yet he ſwallows meat, but particularly liquors, with the utmoſt difficulty. Theſe ſymptoms proceed increaſing in their violence; and, the next day, from the pain he feels in ſwallowing, he conceives ſuch an averſion to liquids, that the very ſight of them throws him into dreadful convulſions. This *hydrophobia* has always

* Comment. 2. in 1. Prorrhet. Hippocrat.

always been conſidered as an infallible ſymptom of a perſon's being affected by the poiſon proceeding from the bite of a mad dog; for it ſeldom, if ever, appears in any other diſeaſe.

At this period of the diſtemper, a fever uſually comes on, which is attended with a quick but low pulſe. The patient cannot command the ſmalleſt degree of ſleep; his voice turns hoarſe; a white froth collects in his mouth, which he ſpits out upon the people about him; univerſal convulſions ſucceed, but particularly in the throat, and in the *muſculi erectores penis*, which produce a continued *priapiſm*. During this diſmal ſcene, which is generally fatal in the courſe of two or three days, a *delirium* appears, ſometimes attended with the moſt dreadful paroxyſms of rage and fury, and frequent attempts of the patients to injure their moſt beloved friends and relations. But this diſeaſe, inſtead of *furor*, more commonly terminates in a deep *melancholy*. In this ſituation, the unhappy but humane patient, reſigns himſelf to the quick approaches of death, and deſires his attendants to beware leſt he ſhould hurt them, begs them not to trouble him any more, and, in a ſhort time, expires in convulſions.

This cruel and terrifying diſeaſe is taken notice of by many of the antients, ſuch as DIOSCORIDES, GALEN, AETIUS, ÆGINETA, &c. None of them, however, have deſcribed it ſo accurately, and with ſo much preciſion, as CAELIUS AURELIANUS *. From the writings of SORANUS, and other Greek phyſicians, he has collected the ſymptoms of this diſeaſe with great care and exactneſs. Among the moderns, the hiſtory of this malady is ably delivered to us by VANDER WIEL †, and the ingenious Dr LISTER ‡. There are ſome ſymptoms,

* De Morbis acutis, lib. 3.

† Obſervat. varior. cent. 1. obſ. 100.

‡ Exercit. Medicinal.

its virtues, informs us, that, in Sicily, it has received the denomination of *Sanatodos*, or *All-heal.* The plant *Alyſſum*, or *Madwort*, among the antients, had its name from its great efficacy in preventing *canine madneſs. Garlic*, *Agrimony*, and *Oxylapathum*, were likewiſe employed with advantage. Dr MEAD juſtly remarks, that all theſe remedies are powerful *diuretics.*

Moſt *inſects*, eſpecially when taken internally, create an unuſual diſcharge of *urine:* But thoſe flies, known by the name of *Cantharides*, have a more powerful effect in promoting this evacuation than any other ſpecies. The learned BACCIUS *, from the authority of RHAZES and JOANNES DAMASCENUS, preſcribes *Cantharides* to be given in ſubſtance for many days ſucceſſively. This *antidote*, as he calls it, is prepared by infuſing the flies in ſour butter-milk twenty-four hours, then drying them, and, with the flour of lentils and wine, making them up into troches of about a ſcruple in weight, one of which is to be taken every day. Even though the patient, he adds, by the uſe of this medicine, ſhould paſs urine mixed with blood, yet copious draughts of milk removes that ſymptom, and the *hydrophobia* is happily prevented. We are likewiſe informed by BACCONE, that the phyſicians in Upper Hungary preſcribe five *Cantharides* as a doſe to men, and a greater quantity to larger animals †.

AETIUS ‡, who carefully collected all the medicines preſcribed by the antient phyſicians for preventing or curing *canine* madneſs, affirms, that he himſelf knew an old man who cured thoſe who had the misfortune to be bit with *common ſorrel* only. He waſhed the wound with a decoction of this plant, and laid it on the part as a cataplaſm, and likewiſe

* De Venen. p. 89.

† Muſeo di-ifica, obſ. 21.

‡ Lib. 6. cap. 24.

likewiſe gave it in drink, which made the patient diſcharge great quantities of turbid urine.

From all theſe and ſimilar accounts, it appears that the remedies againſt the effects of this poiſon have, in all ages, been ſtrong *diuretics*. By reflecting on this circumſtance, the celebrated Dr MEAD was led to recommend the following preſcription: 'Let the patient 'be blooded at the arm nine or ten ounces. Take of the herb cal-'led, in Latin, *Lichen cinereus terreſtris*; in Engliſh, *Aſh-coloured* '*ground liver-wort*, cleaned, dried, and powdered, half an ounce;— 'of black pepper powdered, two drachms: Mix them well together, 'and divide the powder into four doſes, one of which muſt be taken 'every morning, faſting for four mornings ſucceſſively, in half a pint 'of cow's milk warm. After theſe four doſes are taken, the patient 'muſt go into the cold bath, or a cold ſpring or river, every morn-'ing faſting, for a month: He muſt be dipped all over, but ſtay in '(with his head above water) longer than half a minute, if the water 'be very cold. After this, he muſt go in three times a week for a 'fortnight longer *.'

This remedy was firſt publiſhed in the Philoſophical Tranſactions of London †, by Mr DAMPIER, in whoſe family it had been long, and, of courſe, infamouſly kept a ſecret. In the year 1721, however, Dr MEAD, like a gentleman and a man of humanity, procured it to be inſerted in the *Pharmacopeia Londinenſis*, under the name of *Pulvis antilyſſus*. This Lichen, like the other medicines formerly recommended, is a ſtrong diuretic. To this preſcription Dr MEAD added cold bathing, either in the ſea or river water, according to the ſituation

* Mead on Poiſons, p. 164.

† No. 237.

tion and circumſtances of the patient. The antients alſo had the idea of curing canine madneſs by cold bathing. But, inſtead of employing it as a preventative, they never uſed it till evident ſymptoms of *hydrophobia* appeared, when it was perfectly ineffectual. Beſides, their practice often amounted nearly to actual *drowning*, which, to be ſure, would remove every diſeaſe as well as the *hydrophobia*. CELSUS *, who was a bold as well as a ſkilful phyſician, preſcribes cold bathing as the only certain cure for this dreadful diſcaſe; and adviſes, that, if the patient cannot ſwim, he ſhould be allowed to remain ſome time under the water, that he may ſwallow part of the fluid; and, if he can ſwim, that he ſhould be kept under by force, in order to compel him to drink. Dr MEAD remarks, that this practice is juſt *drowning* and *recovering* by turns †. We are told by the famous VAN HELMONT ‡, that he ſaw an old man, who had been ſeized with the *hydrophobia*, cured by *ſubmerſion* in ſalt water; that this patient was firſt held under water about four minutes, then taken out, and again plunged twice, about a minute each time; that, when taken out, he was thought to be quite *dead*; but that, by warmth, and by being laid acroſs a barrel, he threw up the water he had been obliged to ſwallow, and recovered both his life and right ſenſes! The ſame author tells a ſtory of a cure of the common *mania* by *drowning* the patient in freſh water; from which he draws this *ſage* concluſion, that it makes no *difference* in the caſe whether the water be *ſalt* or *freſh!* Such medical practice may be reckoned *bold*, as it certainly is; for, to *drown* any perſon will moſt effectually remove all his *complaints!* It is aſtoniſhing that the learned Dr MEAD, within leſs than fifty years ago, ſhould have related ſeriouſly ſtories almoſt equally ridiculous in *ſubſtance*, as

* Lib. 5. cap. 27.

† Mead on Poiſons, p. 172.

‡ Ortus Medicin. demens idea.

as they are abſurd in the *terms* he employs; but ſo it is*! The Doctor, however, afterwards remarks, that, before the canine madneſs makes its appearance, ſimple *immerſion*, without *drowning*, often prevents this horrible diſeaſe †.

Two other preventative remedies have been, by ſome phyſicians, highly recommended. 1. What is called the *Ormſkirk medicine for the bite of a mad dog:* It is no part of my buſineſs to give ſpecific quantities, becauſe theſe may be either falſe or fanciful. I ſhall, however, relate the baſes of the two ſuppoſed remedies.

1. The *Ormſkirk* medicine conſiſts of chalk, alum, Armenian bole, the powder of the plant called *elacampen*, and the oil of aniſeſeeds.

2. The *tonquin* remedy, which is recommended as an antidote by Sir GEORGE COBB. It is compoſed of native and factitious cinnabar, compounded with muſk.

With regard to the *ſerpent* tribe, which is very numerous, ſome of them are armed with *fangs*, through which a mortal poiſon is conveyed into the bodies of ſuch animals as they happen to bite; but luckily the proportion of theſe noxious ſpecies, when compared to the whole, is very ſmall. The ſpecies of *ſerpents* deſcribed by LINNÆUS amount to 218, of which 32 only are poiſonous, and, of courſe, 186 are innocuous. Of *lizards*, 77 ſpecies are enumerated, not one of which contains or emits a particle of venom. The *toad* is a verrucous animal, has a lurid appearance; his movements are

* Mead on Poiſons, p. 173.

† Ibid. p. 177.

are ſluggiſh and diſguſting; and, when irritated, he emits, from every pore of his body, a frothy ſubſtance like ſaliva. The forbidding aſpect of the toad has created him numberleſs enemies, as well as a very bad, though very unjuſt, character. Wherever he appears, he is perſecuted, maltreated, and murdered, by children, and even by adults, on the ſuppoſition, that, becauſe he is an ugly animal, he muſt therefore be venomous; but, notwithſtanding his unſeemly appearance, he is inoffenſive, and perfectly deſtitute of poiſon. The ſame remark applies both to our water and land *lizards*, of which we have very few ſpecies that are natives of Britain. Still, however, though their aſpect is by no means ſo diſguſting as that of the toad, a ridiculous opinion is generally entertained that they are venomous, and they, accordingly, ſuffer the ſame perſecution as that innocent animal.

Of venomous animals, I have looked, but looked in vain, for a final cauſe. What could be the intention of creating *reptiles*, both abhorrent to the ſight, and, by their bites or ſtings, fatal to men and other animals, I cannot even form a conjecture. Their poiſon, it has been ſaid, is given to them as a perſonal protection. That I deny; for, even of the *ſerpent* tribes, though the form of their bodies, and their mode of life be nearly the ſame, not one in ten of them are provided with this ſuppoſed defence. A man, when walking, either for health or amuſement, on a graſſy turf, accidentally tramples upon a viper; the abominable reptile bites him, inſtils a poiſon into the wound, and, if proper remedies are not timely applied, a cruel and inevitable death is the conſequence. He will be more than an intelligent man who can demonſtrate a *final*, or, which is the ſame thing, a *good* cauſe, for ſuch a *conſequence*. Serpents have, in all ages and countries, had the reputation of extraordinary

ſagacity,

ſagacity, or rather *cunning*, for what reaſon I could never diſcover. Their aſpect, their movements, the idea of their venom, in a word, their whole frame, excite horror. When theſe circumſtances are taken into conſideration, what, in the name of wonder, ſhould have induced MOSES to repreſent this *vile*, this *abhorrent* animal, as a proper object of *temptation* to what, we muſt ſuppoſe, to have been the fineſt woman that ever exiſted? Yet *ſuch things are!*

Concluſion of the PHILOSOPHY OF NATURAL HISTORY.

I HAVE now finiſhed my original plan; with what ſucceſs I know not. I ſhall only ſay, what every intelligent reader will eaſily perceive, that my labours have been great. Before I began the work, had I known the numerous authors which it was neceſſary to peruſe and conſult, I ſhould probably have ſhrunk back, and given up the attempt as impracticable, eſpecially for a man ſo early engaged in the buſineſs of life, and the cares reſulting from a family of no leſs than *thirteen* children, *nine* of whom are ſtill in life.

In the firſt and ſecond volumes, I have endeavoured to unfold the general as well as diſtinctive properties of the vegetable and animal kingdoms. Occaſionally, I have done more. I have ſometimes given pretty full characters both of the figure, diſpoſitions, and manners of animals. In theſe deſcriptive diſcurſions, MAN has not been neglected. Being the principal animal in this planet, he, of courſe, deſerved particular attention, and it has not been

with-held. The varieties of the human ſpecies, in every region of the globe, have been collected and deſcribed from the moſt authentic reſources both antient and modern. Even in the moſt uncultivated, and, to us, deplorable ſituation of the human race, evident traces of goodneſs, of genius, and of heroiſm, are to be found. Theſe amiable qualities, it muſt be confeſſed, are too often ſullied by cruelty, irraſcible paſſions, and every ſpecies of vice. But theſe qualities are univerſal, in whatever ſituation men, whether in a civilized or barbarous ſtate, are placed. The ſtrangeſt and moſt unaccountable part of the hiſtory of mankind is that of their *eating* one another; and yet, from the numerous evidences I have produced, it is impoſſible not to give credit to the ſhocking fact. The reality of *human ſacrifices* is equally certain as the exiſtence of *cannibals*. The diverſity of diſpoſitions, the verſatility of genius, the great differences of taſte and of purſuits, are ſtrong characters of *Man*, and diſtinguiſh him eminently from all the other inhabitants of this earth.

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FINIS.